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Service Manual

ORDER NO.
ARP2083

PROJECTION MONITOR RECEIVER

SD-P4543-K
SD-P454-K
SD-P4546-K

Type	Applicable model			Power requirement	Export destination
	SD-P4543-K	SD-P454-K	SD-P4546-K		
KUX1C	○	○	○	AC 120V only	U. S. A.
KCX1C	○	—	—	AC 120V only	Canada

- Refer to the service manual ARP2080, SD-P4043-K and SD-P404-K.

- This manual is applicable to the SD-P4543-K, SD-P454-K and SD-P4546-K/KUX1C types.
- As to the other types, refer to applicable service manuals.

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1. CHARGED SECTION AND HIGH VOLTAGE GENERATING POINT

■ Charged section

The circuit in which the commercial AC power is used as it is without passing through the power supply transformer. If the charged section is touched, there is a risk of electric shock. In addition, the measuring equipment can be damaged if it is connected to the GND of the charged section and the GND of the non-charged section while connecting the set directly to the commercial AC power supply. In this case, be sure to connect the set via an insulated transformer and supply the current.

■ Charged section
(Power supply primary side)

1. The primary side of the POWER SUPPLY・DEFLECTION assembly	AWV1146
2. AC power cord	ADG1056

part is the charged section.

part is the high voltage generating points other than the charged section.

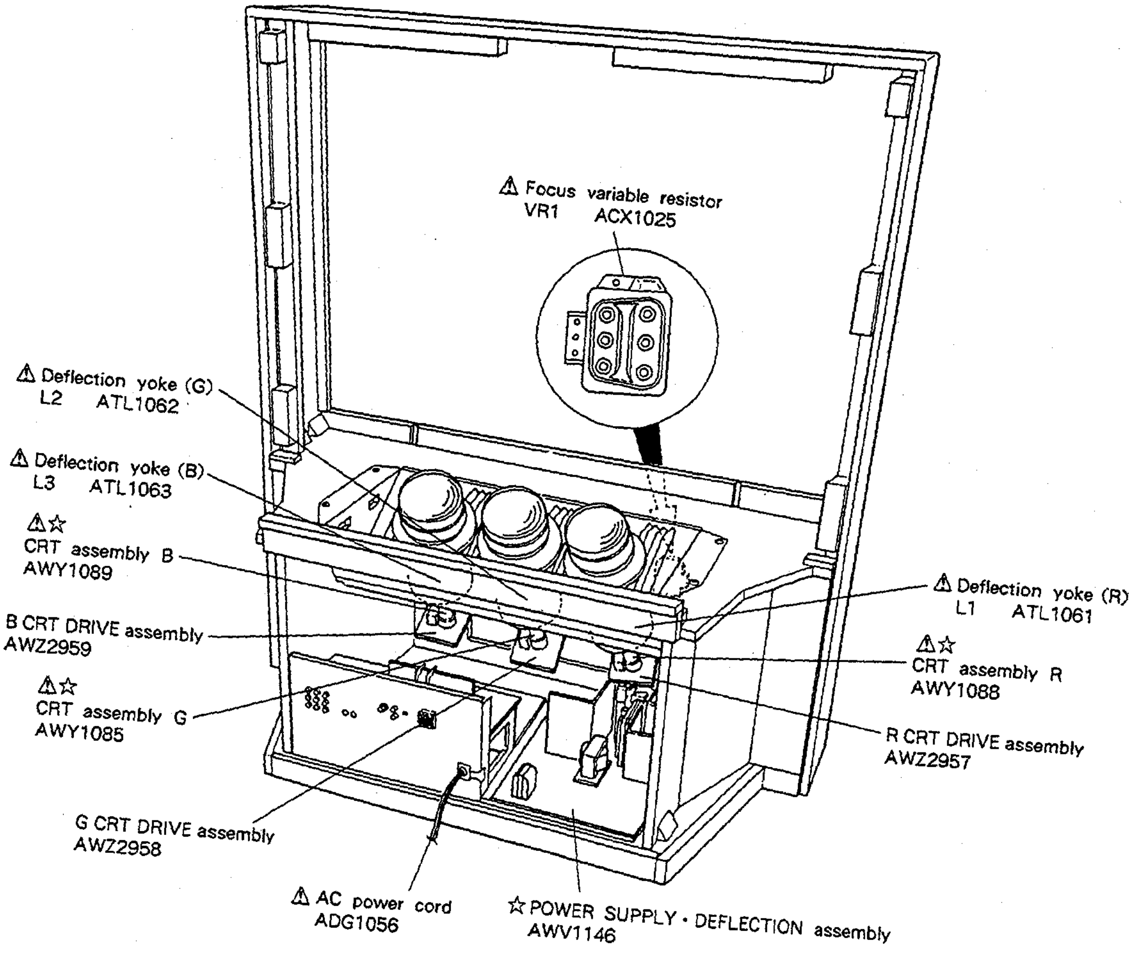

⚠ Focus variable resistor
VR1 ACX1025
⚠ Deflection yoke (G)
L2 ATL1062
⚠ Deflection yoke (B)
L3 ATL1063
⚠☆
CRT assembly B
AWY1089
B CRT DRIVE assembly
AWZ2959
⚠☆
CRT assembly G
AWY1085
G CRT DRIVE assembly
AWZ2958
⚠ AC power cord
ADG1056
☆POWER SUPPLY・DEFLECTION assembly
AWV1146
⚠ Deflection yoke (R)
L1 ATL1061
⚠☆
CRT assembly R
AWY1088
R CRT DRIVE assembly
AWZ2957

Fig. 1-1 Charged section and high voltage generating point

2. CONTRAST OF MISCELLANEOUS PARTS

NOTES :
- Parts without part number cannot be supplied.
- Parts marked by "◉" are not always kept in stock. Their delivery time may be longer than usual or they may be unavailable.
- The ⚠ mark found on some component parts indicates the importance of the safety factor of the part. Therefore, when replacing, be sure to use parts of identical designation.
- When ordering resistors, first convert resistance values into code form as shown in the following examples.
  Ex.1 When there are 2 effective digits (any digit apart from 0), such as 560 ohm and 47k ohm (tolerance is shown by J = 5 %, and K = 10 %).
  560 Ω → 56×10^{1} → 561 ························ RD1/4PS561J
  47k Ω → 47×10^{3} → 473 ························ RD1/4PS473J
  0.5 Ω → 0R5 ························ RN2H0R5K
  1 Ω → 010 ························ RS1P010K
  Ex.2 When there are 3 effective digits (such as in high precision metal film resistors).
  5.62k Ω → 562×10^{1} → 5621 ························ RN1/4SR5621F
- Parts marked by ☆ are important parts which use X – rays.
  If any of these parts need to be replaced, always replace with specified parts.

The SD-P4543-K, SD-P454-K and SD-P4546-K/KUX1C types are the same as the SD-P4043-K/KUX1C type with the exception of the following sections.

Mark	Symbol & Description	Part No.				Remarks
		SD-P4043-K /KUX1C type	SD-P4543-K /KUX1C type	SD-P454-K /KUX1C type	SD-P4546-K /KUX1C type	
	Plate B	AAK1705	• • • • •	• • • • •	• • • • •	
	Plate C	AAK1706	• • • • •	• • • • •	• • • • •	
	Plate A	AAK1976	• • • • •	• • • • •	• • • • •	
	Plate D	AAK1977	• • • • •	• • • • •	• • • • •	
	Badge	AAM1033	AAM1036	AAM1036	AAM1036	
	CRT block	Non supply	• • • • •	• • • • •	• • • • •	
	Cabinet	• • • • •	Non supply	Non supply	Non supply	
	Door	AAN1122	• • • • •	• • • • •	• • • • •	
	Door assembly	• • • • •	AAN1210	AAN1216	AAN1224	
	Mirror protector	• • • • •	Non supply	Non supply	Non supply	
	Cushion sheet A	Non supply	• • • • •	• • • • •	• • • • •	
	Cushion sheet B	Non supply	• • • • •	• • • • •	• • • • •	
	S spacer	Non supply	• • • • •	• • • • •	• • • • •	
	Grill cushion	AEC1186	• • • • •	• • • • •	• • • • •	
	Mirror case cushion	AEC1187	• • • • •	• • • • •	• • • • •	
	SF spacer	Non supply	• • • • •	• • • • •	• • • • •	
	Cushion	Non supply	• • • • •	• • • • •	• • • • •	
	Mirror cushion	Non supply	• • • • •	• • • • •	• • • • •	
	Mirror side cushion	• • • • •	Non supply	Non supply	Non supply	
	Screen side cushion	• • • • •	Non supply	Non supply	Non supply	
	Upper pad L	AHA1262	AHA1338	AHA1338	AHA1338	For packing
	Upper pad R	AHA1263	AHA1339	AHA1339	AHA1339	For packing
	Under pad L	AHA1264	AHA1340	AHA1340	AHA1340	For packing
	Under pad R	AHA1265	AHA1341	AHA1341	AHA1341	For packing
	Side pad L	AHA1266	• • • • •	• • • • •	• • • • •	For packing
	Side pad R	AHA1267	• • • • •	• • • • •	• • • • •	For packing
	Rear pad	AHA1268	• • • • •	• • • • •	• • • • •	For packing
	Spiral tube	AHB1048	AHB1055	AHB1055	AHB1055	For packing
	Under carton	AHD1686	AHD1869	AHD1869	AHD1869	For packing
	Upper carton	AHD1874	AHD1876	AHD1877	AHD1917	For packing
	Spacer	• • • • •	Non supply	Non supply	Non supply	
	Front panel	AMB1475	• • • • •	• • • • •	• • • • •	
	Side panel L	AMB1476	• • • • •	• • • • •	• • • • •	
	Side panel R	AMB1477	• • • • •	• • • • •	• • • • •	
	Side grill	AMB1488	• • • • •	• • • • •	• • • • •	

Mark	Symbol & Description	Part No.				Remarks
		SD-P4043-K /KUX1C type	SD-P4543-K /KUX1C type	SD-P454-K /KUX1C type	SD-P4546-K /KUX1C type	
	Side panel assembly	• • • • •	AMB1498	AMB1498	AMB1694	
	Screen frame (K)	AMB1543	• • • • •	• • • • •	• • • • •	
	Screen frame	• • • • •	AMB1656	AMB1656	AMB1656	
	Front cabinet assembly K2	AMB1668	• • • • •	• • • • •	• • • • •	
	Grill (K2)	AMB1669	• • • • •	• • • • •	• • • • •	
	Front panel assembly	• • • • •	AMB1676	AMB1671	AMB1692	
	Mirror	AMR1523	AMR2172	AMR2172	AMR2172	
	Caster	AMR2127	AMR1652	AMR1652	AMR1652	
	Side SP net	AMR1722	• • • • •	• • • • •	• • • • •	
	Grill R45	• • • • •	AMR2152	AMR2152	AMR2152	
	Fresnel lens	AMR2156	AMR2155	AMR2155	AMR2155	
	Lenticular sheet	AMR2159	AMR2158	AMR2158	AMR2158	
☆	Lens assembly 40 (R)	AMR2160	• • • • •	• • • • •	• • • • •	
☆	Lens assembly 40 (G)	AMR2161	• • • • •	• • • • •	• • • • •	
☆	Lens assembly 40 (B)	AMR2162	• • • • •	• • • • •	• • • • •	
☆	Lens assembly 50 (R)	• • • • •	AMR2163	AMR2163	AMR2163	
☆	Lens assembly 50 (G)	• • • • •	AMR2164	AMR2164	AMR2164	
☆	Lens assembly 50 (B)	• • • • •	AMR2165	AMR2165	AMR2165	
	Mirror holder stay	Non supply	• • • • •	• • • • •	• • • • •	
	Screen holder	Non supply	• • • • •	• • • • •	• • • • •	
	Cabinet upper holder	• • • • •	Non supply	Non supply	Non supply	
	VR holder (40)	Non supply	• • • • •	• • • • •	• • • • •	
	VR holder	• • • • •	Non supply	Non supply	Non supply	
	SF holder A	• • • • •	Non supply	Non supply	Non supply	
	SF holder B	• • • • •	Non supply	Non supply	Non supply	
	Mirror holder A	• • • • •	Non supply	Non supply	Non supply	
	Mirror holder B	• • • • •	Non supply	Non supply	Non supply	
	Screw	• • • • •	AMZ40P200FZK	AMZ40P200FZK	AMZ40P200FZK	
	Screw	BBZ30P060FMC	BBZ30P060FMC	• • • • •	BBZ30P060FMC	*1
	Speaker (High range)	APT1003	APT1004	APT1004	• • • • •	
	Screw	BYC35P160FZK	PMB40P200FMC	PMB40P200FMC	PMB40P200FMC	For caster
	Screw	PMB40P200FZB	• • • • •	• • • • •	• • • • •	
	Screw	PMB50P250FZB	• • • • •	• • • • •	• • • • •	
	Screw	• • • • •	VYC40P160FZK	VYC40P160FZK	VYC40P160FZK	
	Screw	VPZ40P120FMC	• • • • •	• • • • •	• • • • •	
	Plastic rivet	AEC-441	AEC-441	• • • • •	AEC-441	
	PCB support	Non supply	Non supply	• • • • •	Non supply	
	PCB holder B	Non supply	Non supply	• • • • •	Non supply	
	Operating instructions (English)	ARB1252	ARB1252	ARB1253	ARB1273	
	Remote control unit (CU-SD031)	AXD1159	AXD1159	• • • • •	• • • • •	
	Remote control unit (CU-SD032) (SR)	• • • • •	• • • • •	AXD1157	• • • • •	
	Remote control unit (CU-SD035)	• • • • •	• • • • •	• • • • •	AXD1162	
	Battery cover (For remote control unit)	AZA1138	AZA1138	PZN1001	AZA1138	
⚠☆	CRT assembly R	AWY1086	AWY1088	AWY1088	AWY1088	
⚠☆	CRT assembly B	AWY1087	AWY1089	AWY1089	AWY1089	
	CONVERGENCE assembly	AWZ2963	AWZ2964	AWZ2964	AWZ2964	
	PINP assembly	AWZ2954	AWZ2954	• • • • •	AWZ2954	
	PINP SUB assembly	AWZ3025	AWZ3025	• • • • •	AWZ3025	
	VERTICAL • VIDEO • AUDIO assembly	AWZ2961	AWZ2961	AWZ2960	AWZ2961	
☆	POWER SUPPLY • DEFLECTION assembly	AWV1146	AWV1146	AWV1145	AWV1146	
	AV I/O-2P • TUNER assembly	AWZ2972	AWZ2972	AWZ2971	AWZ2972	
	MICOM • SURROUND assembly	AWZ2976	AWZ2976	• • • • •	AWZ3029	
	MICOM assembly	• • • • •	• • • • •	AWZ2975	• • • • •	
	LOGIC assembly	AWZ2955	AWZ2955	• • • • •	AWZ2955	
	PINP SELECT assembly	AWZ2956	AWZ2956	• • • • •	AWZ2956	
	Blind plate (T)	• • • • •	• • • • •	• • • • •	Non supply	

*1 : For PCB holder B

MICOM assembly (AWZ2975) and MICOM • SURROUND assembly (AWZ3029)

The MICOM assembly (AWZ2975) and MICOM • SURROUND assembly (AWZ3029) are the same as the MICOM • SURROUND assembly (AWZ2976) with the exception of the following sections.

Mark	Symbol & Description	Part No.			Remarks
		AWZ2976	AWZ2975	AWZ3029	
	● SURROUND section				
	C311 – C314	CEAS010M50	• • • • • •	CEAS010M50	
	C316	CEAS102M16	• • • • • •	CEAS102M16	
	C317	CQMA272J50	• • • • • •	CQMA272J50	
	C318,C320	CQMA561J50	• • • • • •	CQMA561J50	
	C319,C330	CQMA822J50	• • • • • •	CQMA822J50	
	C321	CQMA153J50	• • • • • •	CQMA153J50	
	C322	CQMA102J50	• • • • • •	CQMA102J50	
	C323	CQMA273J50	• • • • • •	CQMA273J50	
	C324	CQMA182J50	• • • • • •	CQMA182J50	
	C325	CQMA393J50	• • • • • •	CQMA393J50	
	C326	CQMA272J50	• • • • • •	CQMA272J50	
	C327	CQMA683J50	• • • • • •	CQMA683J50	
	C328	CQMA472J50	• • • • • •	CQMA472J50	
	C329	CFTXA104J50	• • • • • •	CFTXA104J50	
	C331	CFTXA184J50	• • • • • •	CFTXA184J50	
	C332	CQMA123J50	• • • • • •	CQMA123J50	
	C333	CEAS470M16	• • • • • •	CEAS470M16	
	C334	CEAS220M16	• • • • • •	CEAS220M16	
	C336	CEAS221M16	• • • • • •	CEAS221M16	
	C337,C338	CKDYF103Z50	• • • • • •	CKDYF103Z50	
	C339 – C342	CEANP010M50	• • • • • •	CEANP010M50	
	C343,C344	CEAS4R7M50	• • • • • •	CEAS4R7M50	
	D301	RD12ESB3	• • • • • •	RD12ESB3	
	IC301	PA0042	• • • • • •	PA0042	
	IC302	LA3607	• • • • • •	LA3607	
	IC303	M5218L	• • • • • •	M5218L	
	IC304	BU4066BL	• • • • • •	BU4066BL	
	Q301,Q302	RN1203	• • • • • •	RN1203	
	Q303	RN2203	• • • • • •	RN2203	
	R801 – R804,R812,R813,R820,R825,R826	RD1/8PM223J	• • • • • •	RD1/8PM223J	
	R805,R806,R811	RD1/8PM473J	• • • • • •	RD1/8PM473J	
	R807,R808	RD1/8PM331J	• • • • • •	RD1/8PM331J	
	R809,R810,R814,R830,R832,R833	RD1/8PM104J	• • • • • •	RD1/8PM104J	
	R815,R816,R829,R831	RD1/8PM102J	• • • • • •	RD1/8PM102J	
	R817,R827,R828	RD1/8PM103J	• • • • • •	RD1/8PM103J	
	R818	RD1/8PM222J	• • • • • •	RD1/8PM222J	
	R821	RD1/8PM333J	• • • • • •	RD1/8PM333J	
	R822	RD1/8PM153J	• • • • • •	RD1/8PM153J	
	R819	RD1/4PMFL220J	• • • • • •	RD1/4PMFL220J	
	● MICOM section				
	R1253 – R1256,R1290,R1363,R1364,R1366	RD1/8PM222J	• • • • • •	RD1/8PM222J	
	R1269	RD1/8PM682J	RD1/8PM182J	RD1/8PM133J	
	R1270	RD1/8PM103J	RD1/8PM103J	RD1/8PM362J	

Note :

- Schematic diagram and P. C. board pattern of the MICOM assembly for the SD-P454-K/KUX1C type is the same as the SD-P404-K/KUX1C type.
  Refer to the schematic diagram and P. C. board pattern of the SD-P404-K/KUX1C type.
- Schematic diagram and P. C. board pattern of the MICOM•SURROUND assembly for the SD-P4546-K/KUX1C type is the same as the SD-P4043-K/KUX1C type except resistance values of R1269 and R1270.

VERTICAL • VIDEO • AUDIO assembly (AWZ2960)

The VERTICAL • VIDEO • AUDIO assembly (AWZ2960) is the same as the VERTICAL • VIDEO • AUDIO assembly (AWZ2961) with the exception of the following sections.

Mark	Symbol & Description	Part No.		Remarks
		AWZ2961	AWZ2960	
	C110	CCDUJ220J50	CQMA681K50	
	C290	• • • • • •	CEAS010M50	
	C244,C245	CCDUJ331J50	• • • • • •	
	D154,D261	1SS252	• • • • • •	
	Q114,Q116,Q255	2SA933S	• • • • • •	
	Q253,Q254	2SC3327	• • • • • •	
	R106	RD1/8PM332J	RD1/8PM472J	
	R157,R178,R179,R448,R449,R452	RD1/8PM101J	• • • • • •	
	R161,R170	RD1/8PM681J	• • • • • •	
	R182,R192	• • • • • •	RD1/8PM101J	
	R475	RD1/8PM472J	• • • • • •	
	R485	RD1/8PM105J	• • • • • •	
	R476	RD1/8PM302J	• • • • • •	
	R477	RD1/8PM153J	• • • • • •	
	R478	RD1/8PM912J	• • • • • •	
	R482	RD1/8PM471J	• • • • • •	
	R781,R782,R791	RD1/8PM103J	• • • • • •	
	R788	RD1/8PM102J	RD1/8PM183J	
	R790	RD1/8PM473J	• • • • • •	
	R483	RD1/8PM102J	• • • • • •	

Note: Schematic diagram and P.C. board pattern of the VERTICAL • VIDEO • AUDIO assembly for the SD-P454-K/KUX1C type is the same as the SD-P404-K/KUX1C type.
Refer to the schematic diagram and P.C. board pattern of the SD-P404-K/KUX1C type.

AV I/O-2P • TUNER assembly (AWZ2971)

The AV I/O-2P • TUNER assembly (AWZ2971) is the same as the AV I/O-2P • TUNER assembly (AWZ2972) with the exception of the following sections.

Mark	Symbol & Description	Part No.		Remarks
		AWZ2972	AWZ2971	
	●AV I/O section			
	R1154,R1157	RD1/8PM222J	• • • • • •	
	R1155,R1171	RD1/8PM102J	• • • • • •	
	R1158	RD1/8PM472J	• • • • • •	
	R1162	RD1/8PM153J	• • • • • •	
	R1173,R1211 – R1214,R1221 – R1223,R1225, R1226,R1420	RD1/8PM223J	• • • • • •	
	R1228	RD1/8PM104J	• • • • • •	
	R1229	RD1/4PMFL150J	• • • • • •	
	C372	CEAS220M16	• • • • • •	
	C373	CEAS100M25	• • • • • •	
	C387	CEAS220M16	CEJA220M10	
	D353	1SS252	• • • • • •	
	Q355,Q357,Q372	2SA933S	• • • • • •	
	Q356,Q358,Q371,Q373	2SC1740S	• • • • • •	

Note: Schematic diagram and P.C. board pattern of the AV I/O-2P • TUNER assembly for the SD-P454-K/KUX1C type is the same as the SD-P404-K/KUX1C type.
Refer to the schematic diagram and P.C. board pattern of the SD-P404 – K/KUX1C type.

POWER SUPPLY • DEFLECTION assembly (AWV1145)

The POWER SUPPLY • DEFLECTION assembly (AWV1145) is the same as the POWER SUPPLY • DEFLECTION assembly (AWV1146) with the exception of the following sections.

Mark	Symbol & Description	Part No.		Remarks
		AWV1146	AWV1145	
	C734	CCDSL221K500	• • • • •	
	C735	CEHAQ471M16	• • • • •	
	D679	RL2Z	• • • • •	
	L654,L655 Ferrite bead	ATX-028	• • • • •	

Note: Schematic diagram and P.C. board pattern of the POWER SUPPLY • DEFLECTION assembly for the SD-P454-K/KUX1C type is the same as the SD-P404-K/KUX1C type.
Refer to the schematic diagram and P.C. board pattern of the SD-P404-K/KUX1C type.

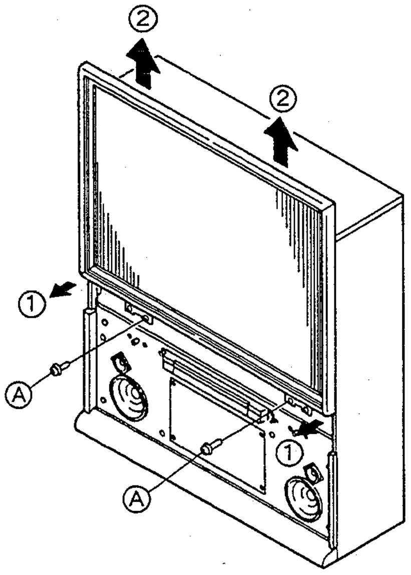
CONVERGENCE assembly (AWZ2964)

The CONVERGENCE assembly (AWZ2964) is the same as the CONVERGENCE assembly (AWZ2963) with the exception of the following sections.

Mark	Symbol & Description	Part No.		Remarks
		AWZ2963	AWZ2964	
	R129	RD1/8PM133J	RD1/8PM333J	
	R197,R266	RD1/8PM223J	RD1/8PM103J	
	R213	RD1/8PM204J	RD1/8PM164J	
	R279	RD1/8PM133J	RD1/8PM113J	
	R280	RD1/8PM113J	RD1/8PM103J	
	R312	RD1/8PM152J	RD1/8PM162J	
	VR701 (10k)	ACP1025	ACP1043	
	VR702,VR703 (47k)	ACP1027	ACP1045	
	VR704 (220k)	ACP1029	ACP1047	
	VR705 – VR707,VR709 – VR740 (4.7k)	ACP1024	ACP1042	
	VR708 (22k)	ACP1026	ACP1044	

Note: Refer to the schematic diagram and P.C. board pattern of the SD-P4043-K/KUX1C type.

3. DISASSEMBLY OF SCREEN FRAME



1. Remove a Grill R45 and a side panel assembly.
2. Remove two screws Ⓐ.
3. Separate the under side of the screen frame about the distance of 15mm in the direction of arrow ①.
4. Remove the Screen frame by pulling up in the direction of arrow ②.

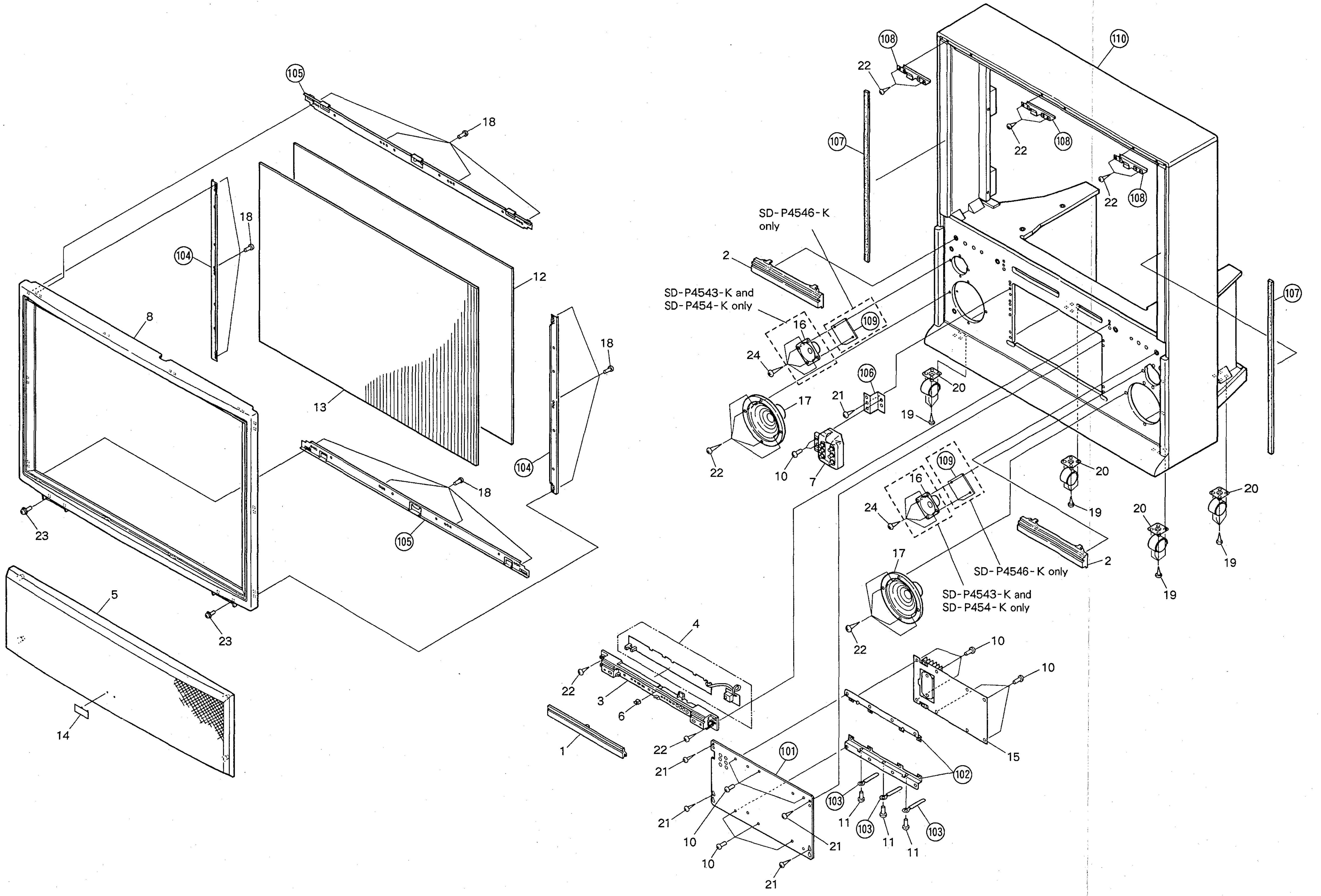
4. EXPLODED VIEWS AND PARTS LIST

NOTES :
- Parts without part number cannot be supplied.
- The ⚠ mark found on some component parts indicates the importance of the safety factor of the part. Therefore, when replacing, be sure to use parts of identical designation.
- Parts marked by "◉" are not always kept in stock. Their delivery time may be longer than usual or they may be unavailable.
- Parts marked by ☆ are important parts which use X – rays.
  If any of these parts need to be replaced, always replace with specified parts.

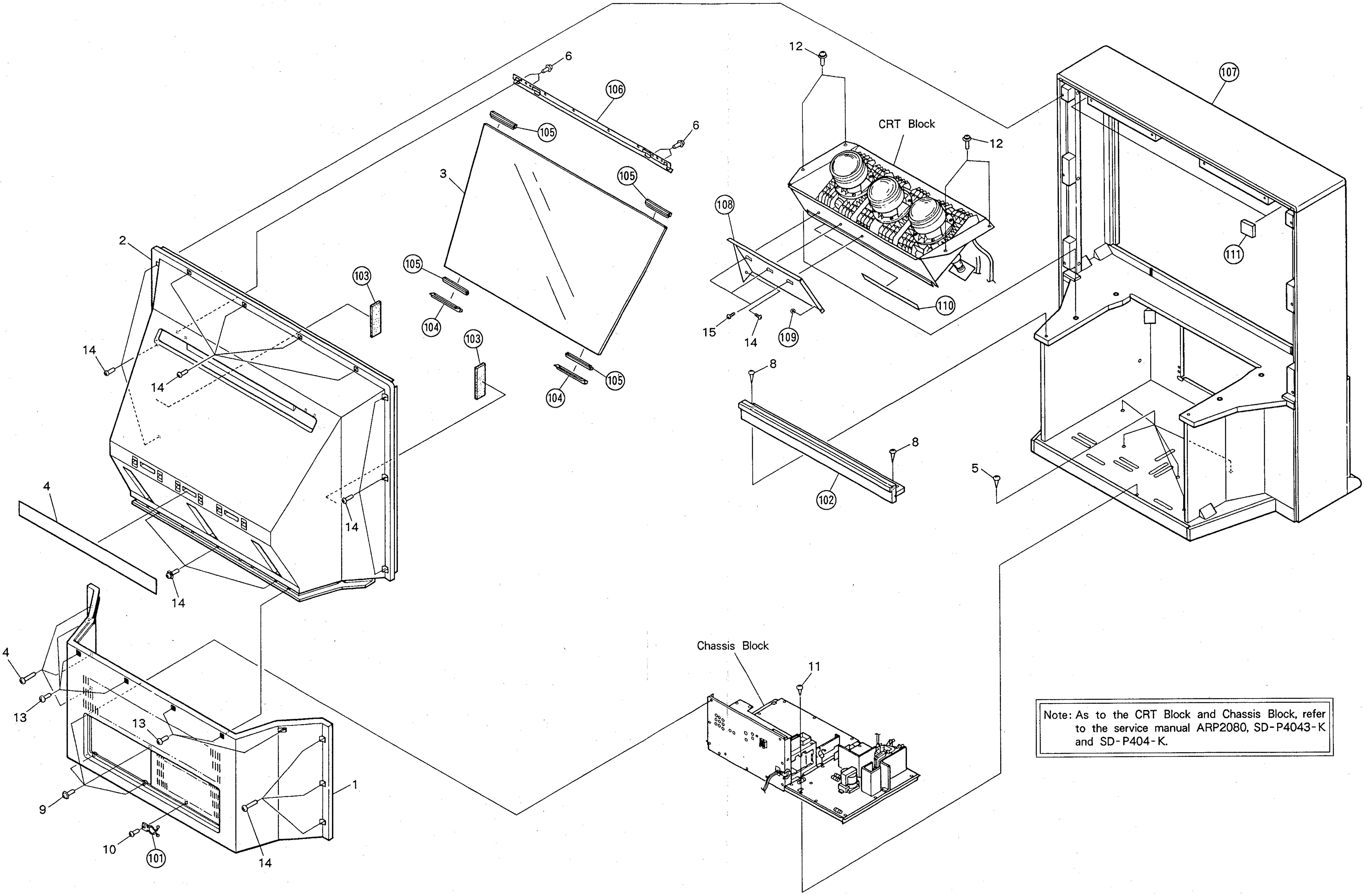
4.1 FRONT VIEW

Parts List

Mark	No.	Part No.	Description
	1	AAN1210	Door assembly (SD-P4543-K only)
	1	AAN1216	Door assembly (SD-P454-K only)
	1	AAN1224	Door assembly (SD-P4546-K only)
	2	AMB1498	Side panel assembly (SD-P4543-K and SD-P454-K only)
	2	AMB1694	Side panel assembly (SD-P4546-K only)
	3	AMB1676	Front panel assembly (SD-P4543-K only)
	3	AMB1671	Front panel assembly (SD-P454-K only)
	3	AMB1692	Front panel assembly (SD-P4546-K only)
	4	AWZ2966	FRONT CONTROL assembly
	5	AMR2152	Grill R45
	6	AEC1012	Catcher
⚠	7	ACX1025	Focus variable resistor (VR1)
	8	AMB1656	Screen frame
	9		• • • • • •
	10	BBZ30P080FZK	Screw
	11	VCZ30P060FMC	Screw
	12	AMR2155	Fresnel lens
	13	AMR2158	Lenticular sheet
	14	AAM1036	Badge
	15	AWZ2964	CONVERGENCE assembly
	16	APT1004	Speaker (High range) (SD-P4543-K and SD-P454-K only)
	17	APV1013	Speaker (Mid-low range)
	18	BPZ30P120FZK	Screw
	19	PMB40P200FMC	Screw
	20	AMR1652	Caster
	21	BYC35P160FZK	Screw
	22	BYC35P120FZB	Screw
	23	AMZ40P200FZK	Screw
	24		Screw (Non supply) (SD-P4546-K only)
	24	BYC35P120FZK	Screw (SD-P4543-K and SD-P454-K only)
	101		Blind plate
	102		Convergence stay
	103		Binder
	104		SF holder B
	105		SF holder A
	106		VR holder
	107		Screen side cushion
	108		Cabinet upper holder
	109		Blind plate (T) (SD-P4546-K only)
	110		Cabinet


A
B
C
D
SD-P4546-K
only
SD-P4543-K and
SD-P454-K only
SD-P4546-K only
SD-P4543-K and
SD-P454-K only

4.2 REAR VIEW


6
106
105
6
3
105
CRT Block
12
12
107
108
111
2
103
105
104
103
105
104
110
15
14
109
14
14
8
8
5
4
14
102
14
Chassis Block
11
14
13
13
1
9
10
101
14

Note: As to the CRT Block and Chassis Block, refer to the service manual ARP2080, SD-P4043-K and SD-P404-K.

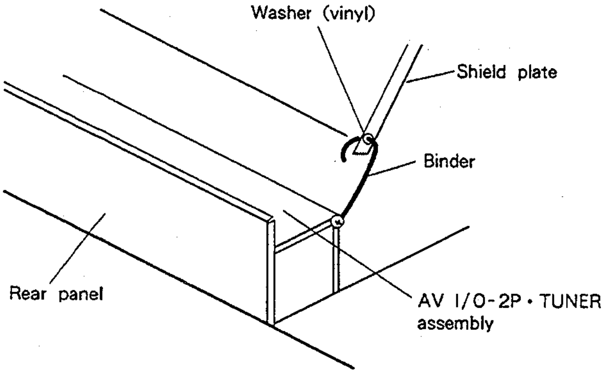
4.2 REAR VIEW

Parts List

Mark	No.	Part No.	Description
	1	AME1036	Rear cover
	2	AME1037	Mirror case
	3	AMR2172	Mirror
	4	AEC1170	Rear sheet
	5	ABA1038	Screw
	6	ABA1069	Screw
	7		• • • • • •
	8	ABA1080	Screw
	9	ABZ30P120FZK	Screw
	10	BPZ30P120FZK	Screw
	11	BYC35P160FZK	Screw
	12	PMB50P180FZB	Screw
	13	VPZ40P160FZK	Screw
	14	VYC40P160FZK	Screw
	15	ABA1021	Screw (3 × 10)

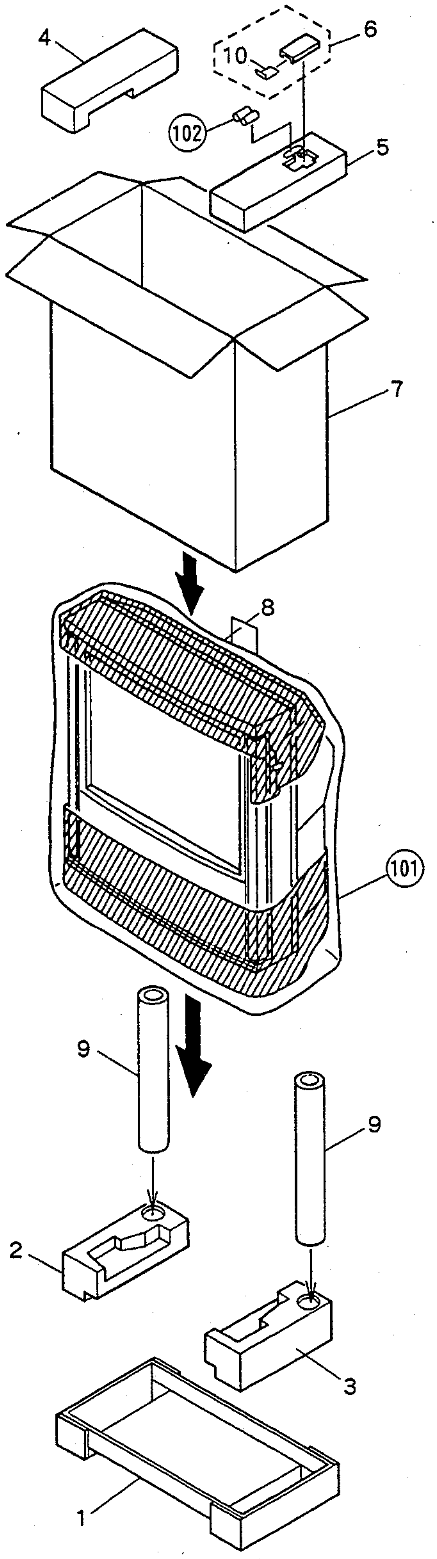
Mark	No.	Part No.	Description
	101		Lead clamper
	102		Shield plate
	103		Mirror side cushion
	104		Mirror holder B
	105		Mirror protector
	106		Mirror holder A
	107		Cabinet
	108		Shield plate (S)
	109		Washer (vinyl)
	110		Stand cushion
	111		Spacer

• WHEN ATTACHING THE SHIELD PLATE



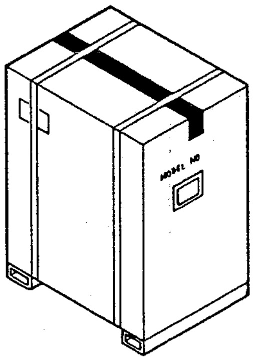
Set the binder through the hole of shield plate and bend it as hold the washer (vinyl).

4.3 PACKING



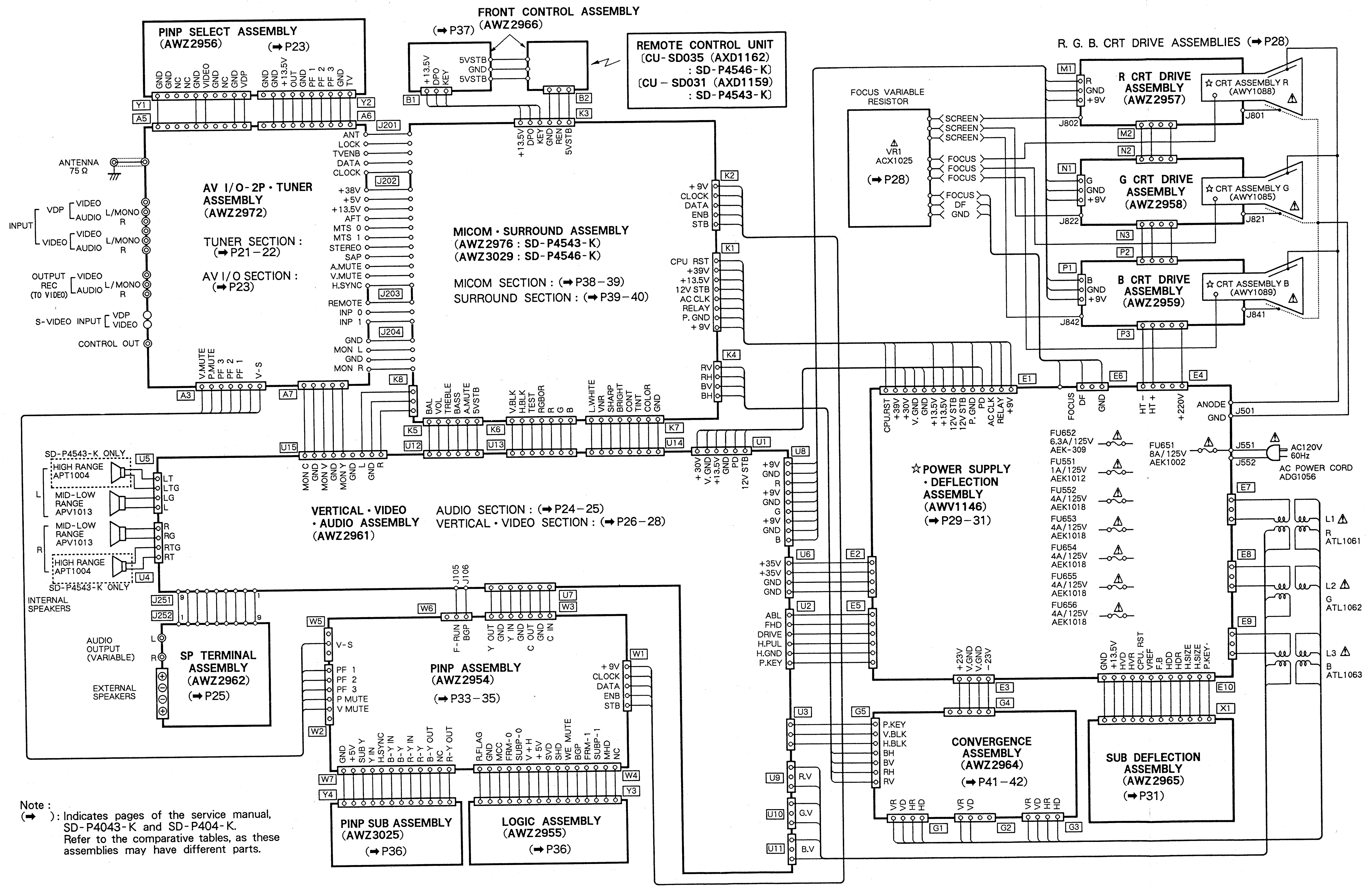
Parts List

Mark	No.	Part No.	Description
	1	AHD1869	Under carton
	2	AHA1340	Under pad L
	3	AHA1341	Under pad R
	4	AHA1338	Upper pad L
	5	AHA1339	Upper pad R
	6	AXD1159	Remote control unit (CU-SD031) (For SD-P4543-K)
	6	AXD1157	Remote control unit (CU-SD032) (For SD-P454-K)
	6	AXD1162	Remote control unit (CU-SD035) (For SD-P4546-K)
	7	AHD1876	Upper carton (For SD-P4543-K)
	7	AHD1877	Upper carton (For SD-P454-K)
	7	AHD1917	Upper carton (For SD-P4546-K)
	8	ARB1252	Operating instructions (English) (For SD-P4543-K)
	8	ARB1253	Operating instructions (English) (For SD-P454-K)
	8	ARB1273	Operating instructions (English) (For SD-P4546-K)
	9	AHB1055	Spiral tube
	10	AZA1138	Battery cover (For SD-P4543-K and SD-P4546-K)
	10	PZN1001	Battery cover (For SD-P454-K)
	101		Packing bag
	102		Battery



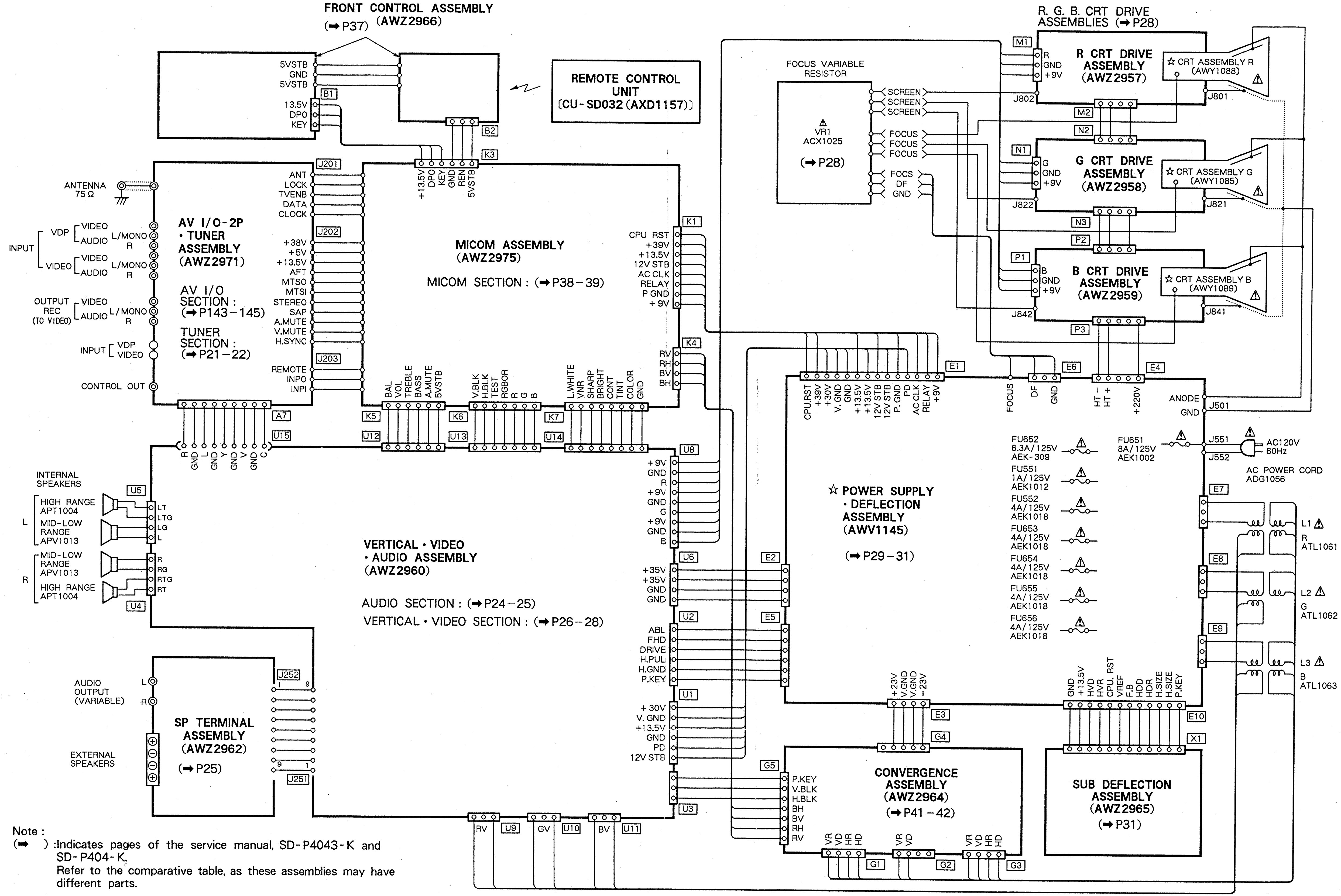
5. OVERALL WIRING DIAGRAM

5.1 FOR SD-P4543-K AND SD-P4546-K/KUX1C TYPES


PINP SELECT ASSEMBLY (AWZ2956) (➡P23)
FRONT CONTROL ASSEMBLY (➡P37) (AWZ2966)
REMOTE CONTROL UNIT
〔CU-SD035 (AXD1162) : SD-P4546-K〕
〔CU-SD031 (AXD1159) : SD-P4543-K〕
R. G. B. CRT DRIVE ASSEMBLIES (➡P28)
FOCUS VARIABLE RESISTOR
VR1 ACX1025 (➡P28)
R CRT DRIVE ASSEMBLY (AWZ2957)
G CRT DRIVE ASSEMBLY (AWZ2958)
B CRT DRIVE ASSEMBLY (AWZ2959)
☆CRT ASSEMBLY R (AWY1088)
☆CRT ASSEMBLY G (AWY1085)
☆CRT ASSEMBLY B (AWY1089)
ANTENNA 75Ω
INPUT
VDP
VIDEO
AUDIO
L/MONO
R
OUTPUT REC (TO VIDEO)
S-VIDEO INPUT
CONTROL OUT
AV I/O-2P・TUNER ASSEMBLY (AWZ2972)
TUNER SECTION : (➡P21-22)
AV I/O SECTION : (➡P23)
MICOM・SURROUND ASSEMBLY
(AWZ2976 : SD-P4543-K)
(AWZ3029 : SD-P4546-K)
MICOM SECTION : (➡P38-39)
SURROUND SECTION : (➡P39-40)
SD-P4543-K ONLY
HIGH RANGE APT1004
MID-LOW RANGE APV1013
INTERNAL SPEAKERS
VERTICAL・VIDEO・AUDIO ASSEMBLY (AWZ2961)
AUDIO SECTION : (➡P24-25)
VERTICAL・VIDEO SECTION : (➡P26-28)
AUDIO OUTPUT (VARIABLE)
EXTERNAL SPEAKERS
SP TERMINAL ASSEMBLY (AWZ2962) (➡P25)
PINP ASSEMBLY (AWZ2954) (➡P33-35)
PINP SUB ASSEMBLY (AWZ3025) (➡P36)
LOGIC ASSEMBLY (AWZ2955) (➡P36)
☆POWER SUPPLY・DEFLECTION ASSEMBLY (AWV1146) (➡P29-31)
FU652 6.3A/125V AEK-309
FU551 1A/125V AEK1012
FU552 4A/125V AEK1018
FU653 4A/125V AEK1018
FU654 4A/125V AEK1018
FU655 4A/125V AEK1018
FU656 4A/125V AEK1018
FU651 8A/125V AEK1002
AC120V 60Hz
AC POWER CORD ADG1056
L1 R ATL1061
L2 G ATL1062
L3 B ATL1063
CONVERGENCE ASSEMBLY (AWZ2964) (➡P41-42)
SUB DEFLECTION ASSEMBLY (AWZ2965) (➡P31)

Note :
(➡): Indicates pages of the service manual, SD-P4043-K and SD-P404-K.
Refer to the comparative tables, as these assemblies may have different parts.

5.2 FOR SD-P454-K/KUX1C TYPE


FRONT CONTROL ASSEMBLY
(➡P37) (AWZ2966)
5VSTB
GND
5VSTB
B1
13.5V
DPO
KEY
B2
K3
REMOTE CONTROL UNIT
[CU-SD032 (AXD1157)]
+13.5V
DPO
KEY
GND
REN
5VSTB
ANTENNA 75 Ω
J201
ANT
LOCK
TVENB
DATA
CLOCK
AV I/O-2P · TUNER ASSEMBLY (AWZ2971)
AV I/O SECTION : (➡P143-145)
TUNER SECTION : (➡P21-22)
INPUT
VDP
VIDEO
AUDIO
L/MONO
R
VIDEO
OUTPUT REC (TO VIDEO)
CONTROL OUT
J202
+38V
+5V
+13.5V
AFT
MTSO
MTSI
STEREO
SAP
A.MUTE
V.MUTE
H.SYNC
J203
REMOTE
INPO
INPI
MICOM ASSEMBLY (AWZ2975)
MICOM SECTION : (➡P38-39)
K1
CPU RST
+39V
+13.5V
12V STB
AC CLK
RELAY
P GND
+9V
K4
RV
RH
BV
BH
K5
BAL
VOL
TREBLE
BASS
A.MUTE
5VSTB
K6
V.BLK
H.BLK
TEST
RGBOR
R
G
B
K7
L.WHITE
VNR
SHARP
BRIGHT
CONT
TINT
COLOR
GND
A7
U15
U12
U13
U14
R
GND
L
GND
Y
GND
V
GND
C
INTERNAL SPEAKERS
U5
HIGH RANGE APT1004
MID-LOW RANGE APV1013
LT
LTG
LG
L
R
RG
RTG
RT
U4
U8
+9V
GND
R
+9V
GND
G
+9V
GND
B
U6
+35V
+35V
GND
GND
U2
ABL
FHD
DRIVE
H.PUL
H.GND
P.KEY
U1
+30V
V. GND
+13.5V
GND
PD
12V STB
U3
VERTICAL · VIDEO · AUDIO ASSEMBLY (AWZ2960)
AUDIO SECTION : (➡P24-25)
VERTICAL · VIDEO SECTION : (➡P26-28)
AUDIO OUTPUT (VARIABLE)
EXTERNAL SPEAKERS
SP TERMINAL ASSEMBLY (AWZ2962)
(➡P25)
J252
J251
RV
U9
GV
U10
BV
U11
FOCUS VARIABLE RESISTOR
VR1 ACX1025
(➡P28)
SCREEN
FOCUS
FOCS
DF
GND
R. G. B. CRT DRIVE ASSEMBLIES (➡P28)
M1
R
GND
+9V
R CRT DRIVE ASSEMBLY (AWZ2957)
☆CRT ASSEMBLY R (AWY1088)
J802
J801
M2
N2
N1
G
G CRT DRIVE ASSEMBLY (AWZ2958)
☆CRT ASSEMBLY G (AWY1085)
J822
J821
N3
P2
P1
B
B CRT DRIVE ASSEMBLY (AWZ2959)
☆CRT ASSEMBLY B (AWY1089)
J842
J841
P3
E1
CPU,RST
+39V
+30V
V.GND
GND
+13.5V
+13.5V
12V STB
12V STB
P.GND
PD
AC CLK
RELAY
+9V
E6
FOCUS
DF
GND
E4
HT-
HT+
+220V
ANODE
GND
J501
J551
J552
AC120V 60Hz
AC POWER CORD ADG1056
FU651 8A/125V AEK1002
FU652 6.3A/125V AEK-309
FU551 1A/125V AEK1012
FU552 4A/125V AEK1018
FU653 4A/125V AEK1018
FU654 4A/125V AEK1018
FU655 4A/125V AEK1018
FU656 4A/125V AEK1018
☆POWER SUPPLY · DEFLECTION ASSEMBLY (AWV1145)
(➡P29-31)
E2
E5
E7
E8
E9
L1 R ATL1061
L2 G ATL1062
L3 B ATL1063
+23V
V.GND
V.GND
-23V
E3
G4
GND
+13.5V
HVD
HVR
CPU, RST
VREF
F.B
HDD
HDR
H.SIZE
H.SIZE
P.KEY
E10
X1
G5
P.KEY
V.BLK
H.BLK
BH
BV
RH
RV
CONVERGENCE ASSEMBLY (AWZ2964)
(➡P41-42)
VR
VD
HR
HD
G1
G2
G3
SUB DEFLECTION ASSEMBLY (AWZ2965)
(➡P31)

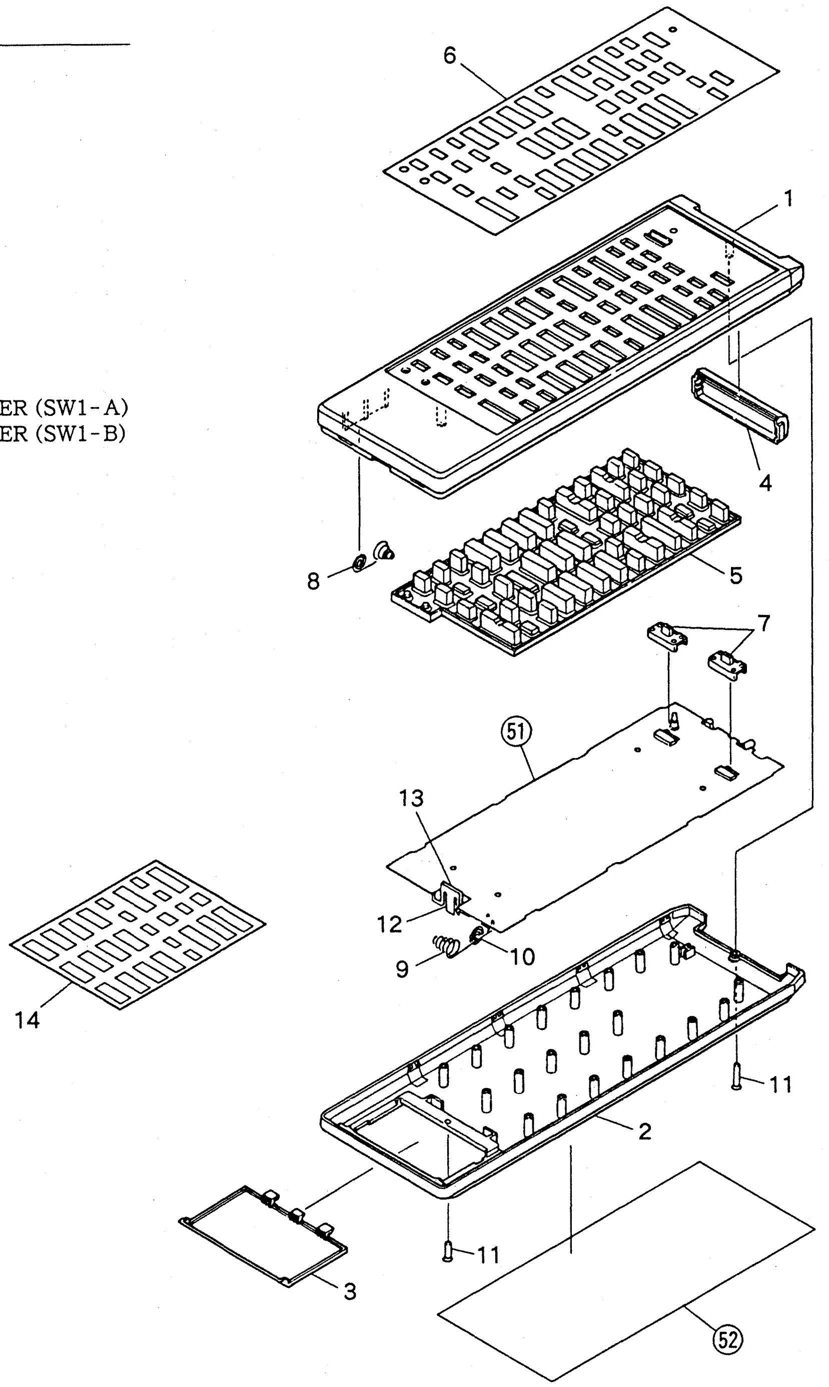
Note :
(➡) :Indicates pages of the service manual, SD-P4043-K and SD-P404-K.
Refer to the comparative table, as these assemblies may have different parts.

6. REMOTE CONTROL UNIT 〔CU-SD035 (AXD1162)〕

6.1 EXPLODED VIEWS AND PARTS LIST

NOTES :
- Parts without part number cannot be supplied.
- The ⚠ mark found on some component parts indicates the importance of the safety factor of the part. Therefore, when replacing, be sure to use parts of identical designation.
- Parts marked by "◉" are not always kept in stock. Their delivery time may be longer than usual or they may be unavailable.

Mark	No.	Part No.	Description
	1	AZA1157	Case (A)
	2	AZA1137	Case (B)
	3	AZA1138	Battery cover
	4	AZA1139	Filter
	5	AZA1263	Rubber sheet
	6	AZA1264	Name plate
	7	AZA1142	Knob (A)
	8	AZB1268	Spring
	9	AZB1269	Spring
	10	AZB1270	Spring
	11	AZA1146	Screw
	12	AZS1084	REMOTE POWER (SW1-A)
	13	AZS1083	REMOTE POWER (SW1-B)
	14	AZA1258	Sheet
	51		PCB board
	52		Label



6.2 ELECTRICAL PARTS LIST

NOTES :
- Parts without part number cannot be supplied.
- Parts marked by "◉" are not always kept in stock. Their delivery time may be longer than usual or they may be unavailable.
- The ⚠ mark found on some component parts indicates the importance of the safety factor of the part. Therefore, when replacing, be sure to use parts of identical designation.
- When ordering resistors, first convert resistance values into code form as shown in the following examples.

Ex.1 When there are 2 effective digits (any digit apart from 0), such as 560 ohm and 47k ohm (tolerance is shown by J = 5 %, and K = 10 %).

560 Ω → 56×10^1 → 561 ············ RD1/4PS$\boxed{5}\boxed{6}\boxed{1}$J
47k Ω → 47×10^3 → 473 ············ RD1/4PS$\boxed{4}\boxed{7}\boxed{3}$J
0.5 Ω → 0R5 ············ RN2H$\boxed{0}\boxed{R}\boxed{5}$K
1 Ω → 010 ············ RS1P$\boxed{0}\boxed{1}\boxed{0}$K

Ex.2 When there are 3 effective digits (such as in high precision metal film resistors).

5.62k Ω → 562×10^1 → 5621 ············ RN1/4SR$\boxed{5}\boxed{6}\boxed{2}\boxed{1}$F

SEMICONDUCTORS

Mark	Symbol & Description	Part No.
	IC1	PDG060-A
	IC2	AZC1232
	IC3	AZC1231
	Q1	AZC1229
	Q2	AZC1230
	D2	AZC1224
	D4	AZC1225
	D5	AZC1226
	D6 – D12	AZC1228

SWITCHES

Mark	Symbol & Description	Part No.
	S01,S03,S04,S06 Slide switch (SR RECALL/USE/LEARN, VDP/VCR1/VCR2)	AZS1074
	SW1-A (REMOTE POWER)	AZS1084
	SW1-B (REMOTE POWER)	AZS1083

CAPACITORS

Mark	Symbol & Description	Part No.
	C1,C2 (100μF/6.3V)	AZC1253
	C3 (10μF/16V)	AZC1254
	C4,C5 (100pF)	AZC1222
	C6,C8 – C10 (0.01μF)	AZC1220
	C7 (1000pF)	AZC1221

RESISTORS

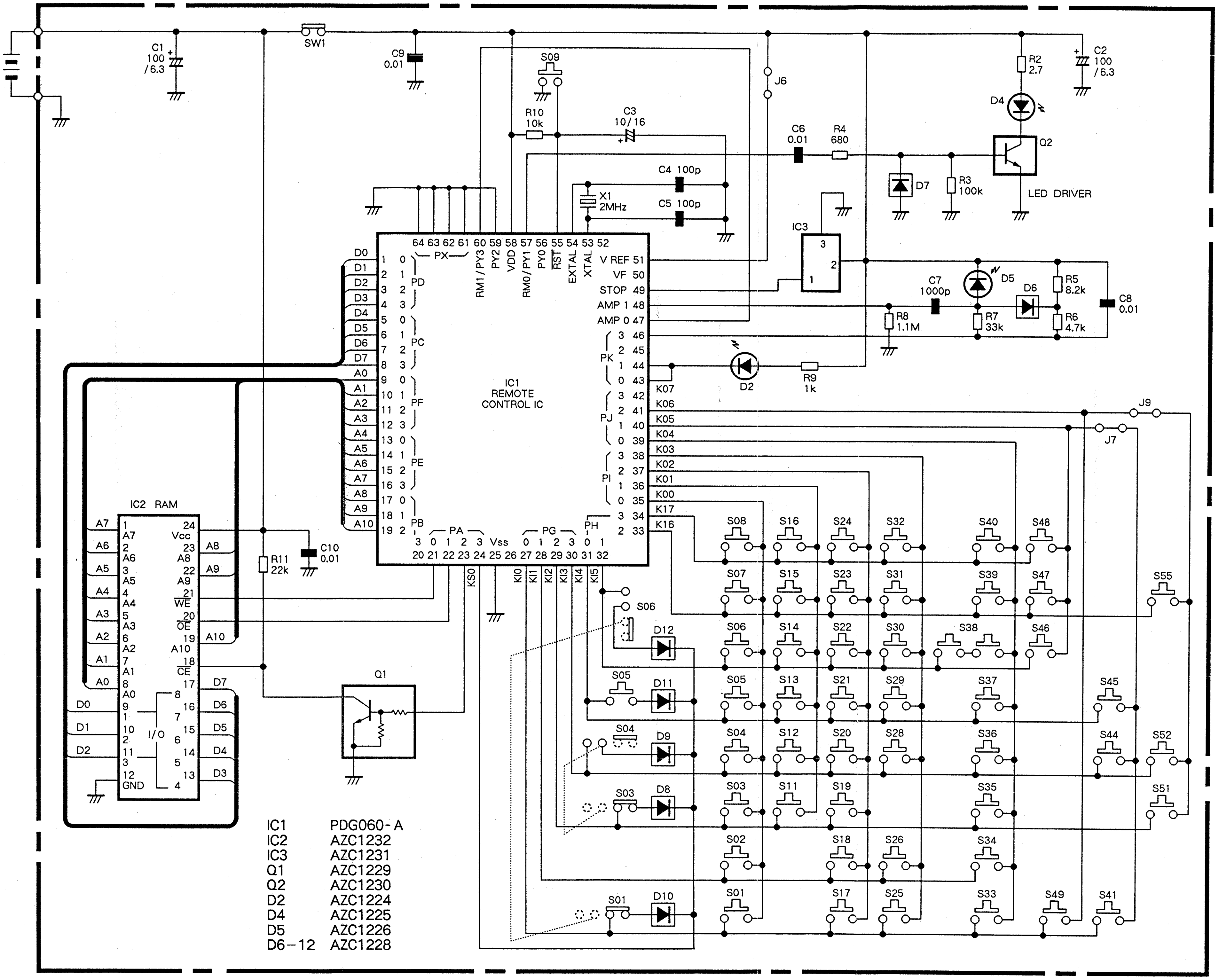
Mark	Symbol & Description	Part No.
	R2 (2.7Ω)	AZC1219
	R3 (100kΩ)	AZC1210
	R4 (680Ω)	AZC1217
	R5 (8.2kΩ)	AZC1214
	R6 (4.7kΩ)	AZC1215
	R7 (33kΩ)	AZC1211
	R8 (1.1MΩ)	AZC1218
	R9 (1kΩ)	AZC1216
	R10 (10kΩ)	AZC1213
	R11 (22kΩ)	AZC1212

OTHERS

Mark	Symbol & Description	Part No.
	X1 (2.0MHz)	AZC1223

6.3 SCHEMATIC DIAGRAM

REMOTE CONTROL UNIT (AXD1162)


BATTERY 1.5V × 2
C1 100 /6.3
SW1
C9 0.01
S09
R10 10k
C3 10/16
J6
C6 0.01
R4 680
R2 2.7
D4
Q2
LED DRIVER
C2 100 /6.3
C4 100p
C5 100p
X1 2MHz
D7
R3 100k
IC3
C7 1000p
D5
D6
R5 8.2k
R6 4.7k
C8 0.01
R8 1.1M
R7 33k
D2
R9 1k
IC1 REMOTE CONTROL IC
V REF 51
VF 50
STOP 49
AMP 1 48
AMP 0 47
PX PD PC PF PE PB PA PG PH PK PJ PI
RM1/PY3 PY2 VDD RM0/PY1 PY0 RST EXTAL XTAL
Vss
K07 K06 K05 K04 K03 K02 K01 K00 K17 K16
KS0 KI0 KI1 KI2 KI3 KI4 KI5
D0 D1 D2 D3 D4 D5 D6 D7 A0 A1 A2 A3 A4 A5 A6 A7 A8 A9 A10
IC2 RAM
Vcc WE OE CE GND I/O
R11 22k
C10 0.01
Q1
J7 J9
S06 S05 S04 S03 S01
D12 D11 D9 D8 D10
S08 S16 S24 S32 S40 S48
S07 S15 S23 S31 S39 S47 S55
S06 S14 S22 S30 S38 S46
S05 S13 S21 S29 S37 S45
S04 S12 S20 S28 S36 S44 S52
S03 S11 S19 S35 S51
S02 S18 S26 S34
S01 S17 S25 S33 S49 S41

IC1	PDG060-A
IC2	AZC1232
IC3	AZC1231
Q1	AZC1229
Q2	AZC1230
D2	AZC1224
D4	AZC1225
D5	AZC1226
D6−12	AZC1228

1. RESISTORS :
Indicated in Ω, 1/4W, 1/6W and 1/8W, ±5% tolerance unless otherwise noted k ; kΩ, M ; MΩ, (F) ; ±1%, (G) ; ±2%, (K) ; ±10%, (M) ; ±20% tolerance.

2. CAPACITORS :
Indicated in capacity (μF)/voltage (V) unless otherwise noted p ; pF. Indication without voltage is 50V except electrolytic capacitor.

3. OTHERS :
➡ ; Signal route.
⊘ ; Adjusting point.
The ⚠ mark found on some component parts indicates the importance of the safety factor of the part. Therefore, when replacing, be sure to use parts of identical designation.
※ marked capacitors and resistors have parts numbers.

This is the basic schematic diagram, but the actual circuit may vary due to improvements in design.

4. SWITCHES : (The underlined indicates the switch position)
SW1 : REMOTE POWER

	VDP	VCR1	VCR2
S01	ON	OFF	OFF
S06	OFF	OFF	ON

	SR RECALL	USE	LEARN
S03	ON	OFF	OFF
S04	OFF	OFF	ON

S05 : M−CLR
S09 : RESET

S1 : TV ⎤
S2 : VDP ⎥ POWER
S3 : VCR1 ⎥
S4 : VCR2 ⎦
S5 : SLEEP
S6 : TV ⎤ INPUT
S7 : VDP ⎥ SELECT
S8 : VIDEO 1 ⎦
S11 : − ⎤ TV CHANNEL
S12 : + ⎦
S13 : MUTE
S14 : − ⎤ VOLUME
S15 : + ⎦
S16 : P IN P
S17 : 1
S18 : 2
S19 : 3
S20 : 4
S21 : 5
S22 : 6
S23 : 7
S24 : 8
S25 : 9
S26 : 0

S28 : CH RETURN
S29 : SWAP
S30 : MULTI
S31 : SHIFT
S32 : P IN P INPUT
S33 : CHAP −/CH −
S34 : CHAP +/CH +
S35 : PAUSE
S36 : REW
S37 : FF
S38 : ····/REC
S39 : STOP
S40 : PLAY
S41 : MTS
S44 : D-SOUND EXP.
S45 : DISPLAY
S46 : STD/AV MEMORY
S47 : −
S48 : +
S49 : PICTURE
S51 : SOUND
S52 : DPO
S55 : CS SELECTOR

NOTE :

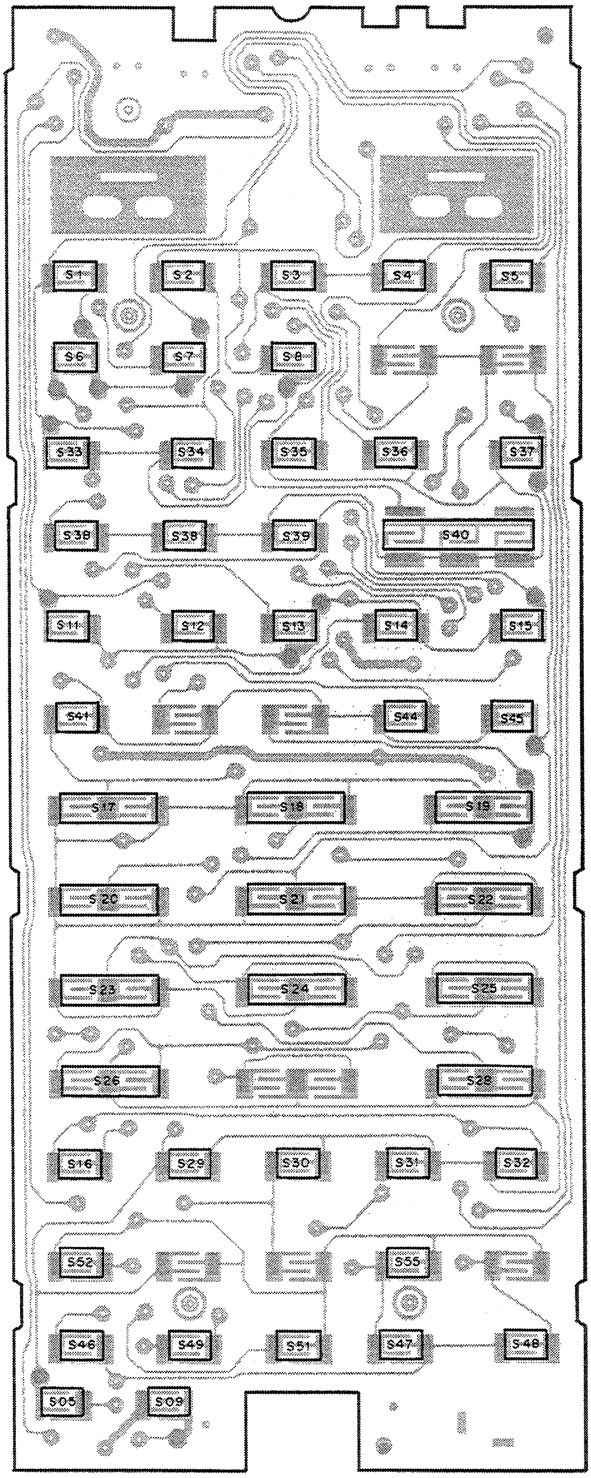
▭ : Indicates a chip resistor.

▮ : Indicates a chip capacitor.

: Indicates a chip transistor.

▶| : Indicates a chip diode.

6.4 P. C. BOARD PATTERN


S1
S2
S3
S4
S5
S6
S7
S8
S33
S34
S35
S36
S37
S38
S38
S39
S40
S11
S12
S13
S14
S15
S41
S44
S45
S17
S18
S19
S20
S21
S22
S23
S24
S25
S26
S28
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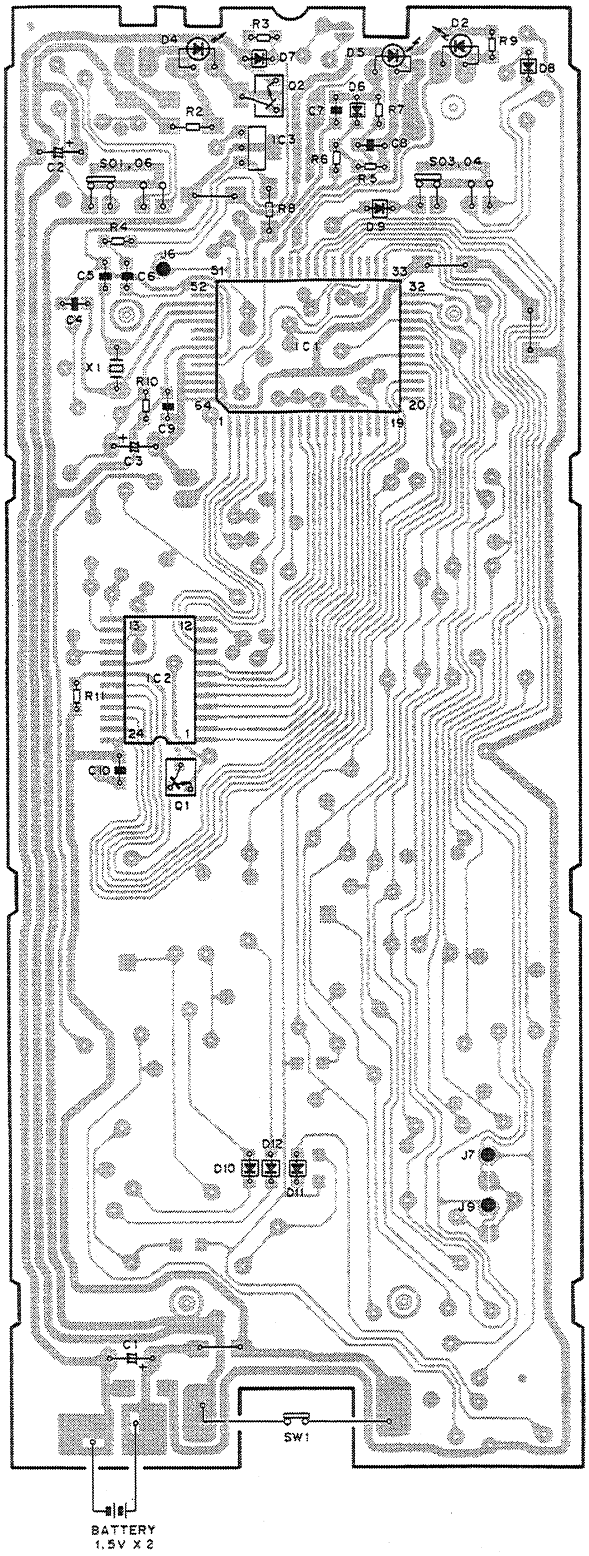
S32
S52
S55
S46
S49
S51
S47
S48
S05
S09


D4
R3
D7
D5
D2
R9
D8
Q2
D6
C7
R7
R2
IC3
C8
C2
S01, 06
R6
R5
S03, 04
R8
D9
R4
J6
C5
C6
51
33
52
32
C4
IC1
X1
R10
54
20
C9
1
19
C3
13
12
IC2
R11
24
1
C10
Q1
D12
D10
D11
J7
J9
C1
SW1
BATTERY
1.5V X 2

7. ADJUSTMENT FOR SD-P4546-K/KUX1C TYPE

- The SD-P4546-K/KUX1C type has no VNR setting but a CSS setting in its place.
  The adjustment item of "VNR setting" for the SD-P4043-K/KUX1C type must be replaced with "CSS setting".

<table>
<tr>
<td>CSS1 or CSS2 setting</td>
<td>1. Enter the FACTORY ADJ. mode.
2. Press the MUTE key on the remote control unit to select "ADJUSTMENT CSS1" or "ADJUSTMENT CSS2".
3. In "ADJUSTMENT CSS1" or "ADJUSTMENT CSS2" mode, set the numerical telop using the ADJUST key on the remote control unit to the following values. (After the adjustment is completed, release FACTORY ADJ. mode and return to the normal condition.) *2</td>
<td>*1
<table>
<tr><th rowspan="2">Item</th><th colspan="2">Setting value of the numerical telop</th></tr>
<tr><th>CSS1</th><th>CSS2</th></tr>
<tr><td>COLOR</td><td>− 20</td><td>− 10</td></tr>
<tr><td>TINT</td><td>0</td><td>0</td></tr>
<tr><td>CONTR</td><td>0</td><td>− 10</td></tr>
<tr><td>BRITE</td><td>− 30</td><td>0</td></tr>
<tr><td>SHARP</td><td>− 10</td><td>− 35</td></tr>
<tr><td>DETAL</td><td>− 30</td><td>− 50</td></tr>
<tr><td>BASS</td><td>+ 12</td><td>+ 12</td></tr>
<tr><td>TREBL</td><td>− 9</td><td>− 12</td></tr>
</table>
</td>
</tr>
</table>

*1: These values are equal to the standard values set at the factory.
*2: When FACTORY ADJ. mode is released and the normal condition is resumed, check the convergence position.

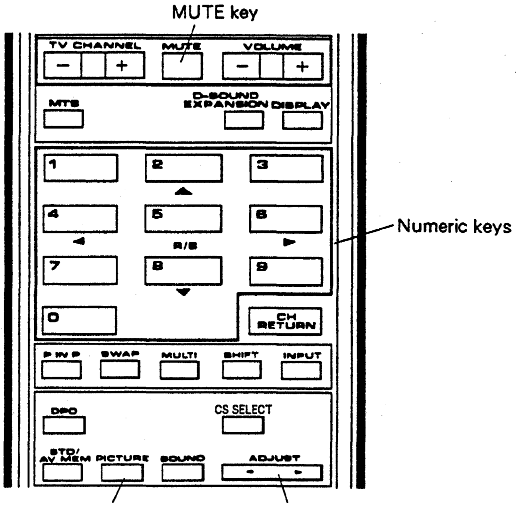
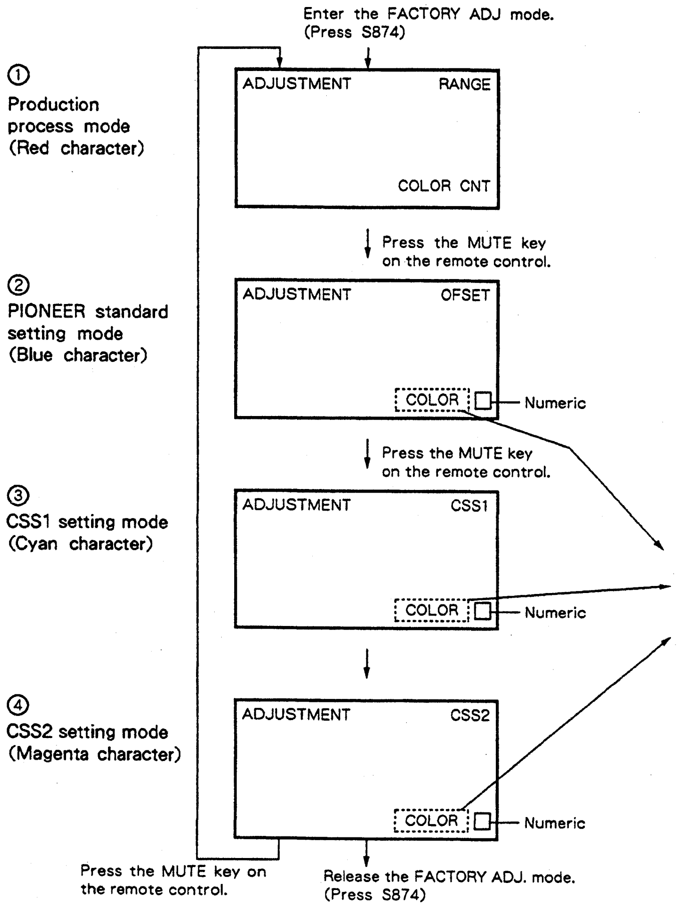

MUTE key
TV CHANNEL
MUTE
VOLUME
MTS
D-SOUND EXPANSION
DISPLAY
1
2
3
4
5
6
7
8
9
0
R/S
CH RETURN
Numeric keys
P IN P
SWAP
MULTI
SHIFT
INPUT
DPD
CS SELECT
STD/AV MEM
PICTURE
SOUND
ADJUST
PICTURE key
◄ADJUST► key

Fig. 7-1
Operation point of the remote control unit


Enter the FACTORY ADJ mode.
(Press S874)
①
Production process mode
(Red character)
ADJUSTMENT
RANGE
COLOR CNT
Press the MUTE key on the remote control.
②
PIONEER standard setting mode
(Blue character)
ADJUSTMENT
OFSET
COLOR
Numeric
Press the MUTE key on the remote control.
③
CSS1 setting mode
(Cyan character)
ADJUSTMENT
CSS1
COLOR
Numeric
④
CSS2 setting mode
(Magenta character)
ADJUSTMENT
CSS2
COLOR
Numeric
Press the MUTE key on the remote control.
Release the FACTORY ADJ. mode.
(Press S874)

PICTURE key
↓
COLOR
↓
TINT
↓
CONTR
↓
BRITE
↓
SHARP
↓
DETAL
↓
BASS
↓
TREBL

OR

Press the numeric key on the remote control.

COLOR : 1
TINT : 2
CONTR : 3
BRITE : 4
SHARP : 5
DETAL : 6
BASS : 7
TREBL : 8

Fig. 7-2 Screen indication of FACTORY ADJ. mode

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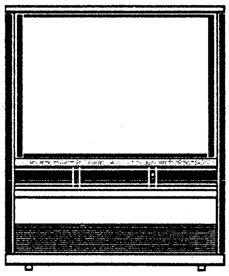
The future of sound and vision.

Service Manual



ORDER NO.
ARP2080

PROJECTION MONITOR RECEIVER

SD-P4043-K
SD-P404-K

SD-P4043-K, SD-P404-K, SD-P4044-K AND SD-P4004 HAVE FOLLOWING VERSIONS :

Type	Applicable model				Power requirement	Export destination
	SD-P4043-K	SD-P404-K	SD-P4044-K	SD-P4004		
KUX1C	○	○	○	—	AC 120V only	U. S. A
KCX1C	—	○	—	—	AC 120V only	Canada
S	—	—	—	○	AC110V, 120V, 220V, 240V (switchable)	U. S. Military

- This manual is applicable to the SD-P4043-K/KUX1C and SD-P404-K/KUX1C types.
- As to the SD-P404-K/KUX1C type, refer to page 136.
- As to the other types, refer to applicable service manuals.
- This manual is combined with operating instructions (from pages 147).

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IFO JUNE. 1990 Printed in Japan

This service manual is intended for qualified service technicians; it is not meant for the casual do-it-yourselfer. Qualified technicians have the necessary test equipment and tools, and have been trained to properly and safely repair complex products such as those covered by this manual.
Improperly performed repairs can adversely affect the safety and reliability of the product and may void the warranty. If you are not qualified to perform the repair of this product properly and safely, you should not risk trying to do so and refer the repair to a qualified service technician.

WARNING
Lead in solder used in this product is listed by the California Health and Welfare agency as a known reproductive toxicant which may cause birth defects or other reproductive harm (California Health & Safety Code, Section 25249.5).
When servicing or handling circuit boards and other components which contain lead in in solder, avoid unprotected skin contact with the solder. Also, when soldering do not inhale any smoke or fumes produced.

1. SAFETY PRECAUTIONS

NOTICE : Comply with all cautions and safety related notes located on or inside the cabinet and on the chassis or picture tube.
The following precautions should be observed :

1. Do not install, remove, or handle the picture tube in any manner unless shatterproof goggles are worn. People not so equipped should be kept away while picture tubes are handled.
   Keep picture tube away from the body while handling.
2. When service is required, even though the SD-P4043-K an isolation transformer should be inserted between power line and the set in safety before any service is performed.
3. When replacing a chassis in the set, all the protective devices must be put back in place, such as barriers, nonmetallic knobs, adjustment and compartment covershields, isolation resistor-capacitor, etc.
4. When service is required, observe the original lead dress.
   Extra precaution should be taken to assure correct lead dress in the high voltage circuitry area.
5. Always use the manufacturer's replacement components.
   Especially critical components as indicated on the circuit diagram should not be replaced by other manufacture's.
   Furthermore where a short circuit has occurred, replace those components that indicate evidence of overheating.
6. Before returning a serviced set to the customer, the service technician must thoroughly test the unit to be certain that it is completely safe to operate without danger of electrical shock, and be sure that no protective device built into the set by the manufacturer has become defective, or inadvertently defeated during servicing.

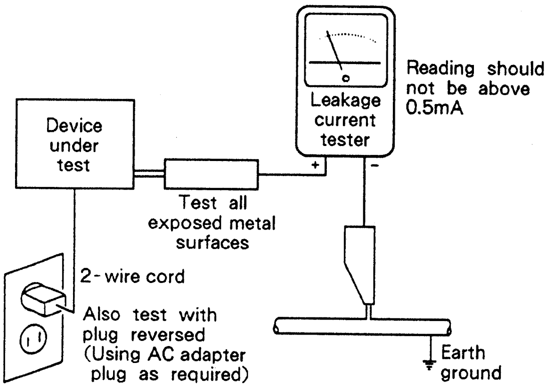
Therefore, the following checks should be performed for the continued protection of the customer and service technician.

Leakage Current Cold Check

With the AC plug removed from the 120V AC 60Hz source, place a jumper across the two plug prongs. Turn the AC power switch on. Using an insulation tester (DC 500V), connect one lead to the jumpered AC plug and touch the other lead to each exposed metal part (input/output terminals, screwheads, metal overlays, control shafts, etc.), particularly any exposed metal part having a return path to the chassis. Exposed metal parts having a return path to the chassis should have a minimum resistor reading of 0.3MΩ and a maximum resistor reading of 5MΩ. Any resistor value below or above this range indicates an abnormality which requires corrective action. Exposed metal parts not having a return path to the chassis will indicate an open circuit.

Leakage Current Hot Check

Plug the AC line cord directly into a 120V AC 60Hz outlet (do not use an isolation transformer for this check). Turn the AC power switch on. Using a "Leakage Current Tester (Simpson Model 229 equivalent)", measure for current from all exposed metal parts of the cabinet (input/output terminals, screwheads, metal overlays, control shaft, etc.), particularly any exposed metal part having a return path to the chassis, to a known earth ground (water pipe, conduit, etc.). Any current measured must not exceed 0.5mA.


Leakage current tester
Reading should not be above 0.5mA
Device under test
+
-
Test all exposed metal surfaces
2-wire cord
Also test with plug reversed (Using AC adapter plug as required)
Earth ground

AC Leakage Test

ANY MEASUREMENTS NOT WITHIN THE LIMITS OUTLINED ABOVE ARE INDICATIVE OF A POTENTIAL SHOCK HAZARD AND MUST BE CORRECTED BEFORE RETURNING THE SET TO THE CUSTOMER.

High Voltage

This set is provided with a X-ray protection for clearly indicating that voltage has increased in excess of a predetermined value. Comply with all notes described in this Service Manual regarding this hold down circuit when servicing, so that this X-ray protection may correctly be operated.

Serviceman Warning

In the status of the black picture (video muting is being applied) when no signal is input, high voltage of this set during operation is less than 31.4kV. In case any component having some relation to the high voltage is replaced, confirm that the high voltage is lower than 31.4kV in the status of the black picture when no signal is input.

X-radiation

TUBE : The primary source of X-radiation in this set is the picture tube.
For continued X-radiation protection, the replacement tube must be the same type as the original, PIONEER approved type.
The picture tube (CRT assembly R, G, B) used in this set holds complete guarantee against X-ray radiation when the X-ray is sealed (See on page 5). Accordingly, when the current in flowing to the picture tube (CRT assembly R, G, B), be sure to perform it by putting the tube into X-ray sealed applied state. Avoid absolutely to flow the current to the picture tube (CRT assembly R, G, B) itself. Moreover, when the voltage of the high voltage circuit becomes abnormally a little higher, the picture tube radiates X-rays. Accordingly, when servicing the high voltage circuit be sure to replace as an assembly with the POWER SUPPLY • DEFLECTION assembly (AWV1146) in the manner in which has been adjusted to perform normal operation.

2. PRODUCT SAFETY NOTICE

Many electrical and mechanical parts in PIONEER set have special safety related characteristics. These are often not evident from visual inspection nor the protection afforded by them necessarily can be obtained by using replacement components rated for higher voltage, wattage, etc. Replacement parts which have these special safety characteristics are identified in this Service Manual.
Electrical components having such features are identified by marking with a ⚠ on the schematics and on the parts list in this Service Manual.
The use of a substitute replacement component which does not have the same safety characteristics as the PIONEER recommended replacement one, shown in the parts list in this Service Manual, may create shock, fire, X-radiation, or other hazards.
Product Safety is continuously under review and new instructions are issued from time to time. For the latest information, always consult the current PIONEER Service Manual. A subscription to, or additional copies of PIONEER Service Manual may be obtained at a nominal charge from PIONEER.

3. CHARGED SECTION, HIGH VOLTAGE GENERATING POINT AND X-RAY PROTECTION

■ Charged section

The circuit in which the commercial AC power is used as it is without passing through the power supply transformer. If the charged section is touched, there is a risk of electric shock. In addition, the measuring equipment can be damaged if it is connected to the GND of the charged section and the GND of the non-charged section while connecting the set directly to the commercial AC power supply. In this case, be sure to connect the set via an insulated transformer and supply the current.

■ Charged section (Power supply primary side)

1. The primary side of the POWER SUPPLY・DEFLECTION assembly AWV1146
2. AC power cord ADG1056

▨ part is the charged section.
▒ part is the high voltage generating points other than the charged section.

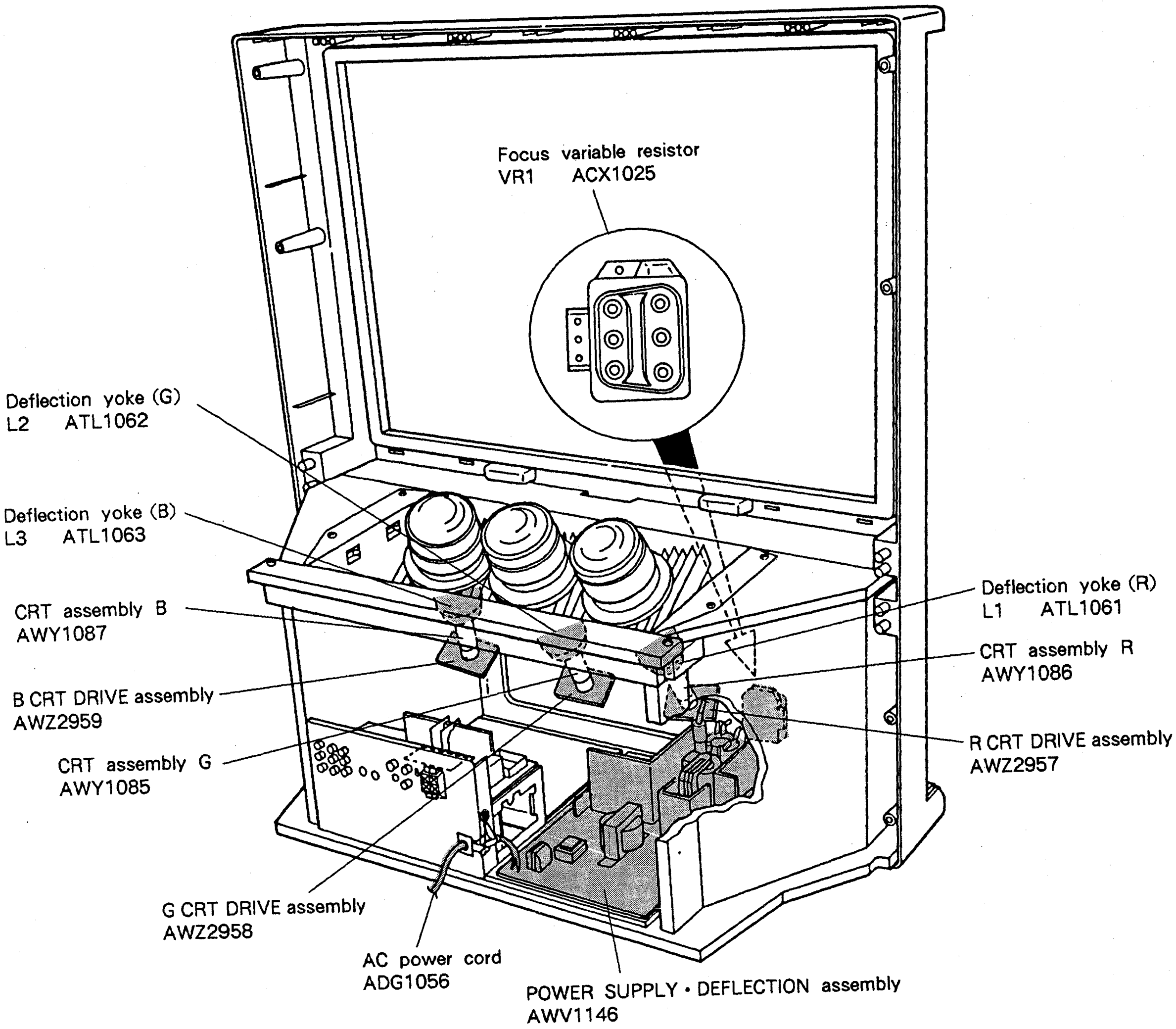

Focus variable resistor
VR1 ACX1025
Deflection yoke (G)
L2 ATL1062
Deflection yoke (B)
L3 ATL1063
CRT assembly B
AWY1087
B CRT DRIVE assembly
AWZ2959
CRT assembly G
AWY1085
G CRT DRIVE assembly
AWZ2958
AC power cord
ADG1056
POWER SUPPLY・DEFLECTION assembly
AWV1146
Deflection yoke (R)
L1 ATL1061
CRT assembly R
AWY1086
R CRT DRIVE assembly
AWZ2957

Fig. 3-1 Charged section and high voltage generating point

■ High voltage generating point

The place where voltage of over 100V is generated.

1. Charged section
2. POWER SUPPLY • DEFLECTION assembly (including FBT)
   AWV1146 (31.0kV, 135V)
3. R CRT DRIVE assembly
   AWZ2957 (10.5kV)
4. G CRT DRIVE assembly
   AWZ2958 (10.5kV)
5. B CRT DRIVE assembly
   AWZ2959 (10.5kV)
6. CRT assembly R
   AWY1086 (31.0kV)
7. CRT assembly G
   AWY1085 (31.0kV)
8. CRT assembly B
   AWY1087 (31.0kV)
9. Focus variable resistor (VR1)
   ACX1025 (10.5kV)
10. Deflection yoke
    ATL1061 (L1 : R)
    ATL1062 (L2 : G) (Approx. 1100V at peak)
    ATL1063 (L3 : B)

■ X-ray protection

- Regarding the parts which are relative to radiation of X-rays (There is the danger to radiate X-ray from the individual CRT assembly R, G, B), there are notifications of caution in the individual schematic diagrams. Be sure to read them for safety's sake.
- The component parts for X-ray protection are as follows: When the current flows to the CRT assembly R, G, B, be sure to perform it with these parts being attached. Protection from the X-ray radiation is maintained in the state in which these parts have been installed to the CRT assembly R, G, B. Accordingly, never supply current only to the CRT assembly R, G, B.
  Moreover, the anode voltage of the CRT assembly R, G, B should always be kept not higher than the predetermined value (in the minimum brightness and picture state when non signal input is higher than 31.8kV). Be sure to drive the CRT assembly R, G, B by using a completely functional POWER SUPPLY• DEFLECTION assembly (AWV1146) which has been adjusted completely in the combined state. (When the voltage abnormally becomes high, the X-ray protection circuit will operate.)

1. CRT assembly R, G, B (Do not dismantle CRT assemblies under any circumstances).
2. Lens assembly 40 (G), (B), (R)

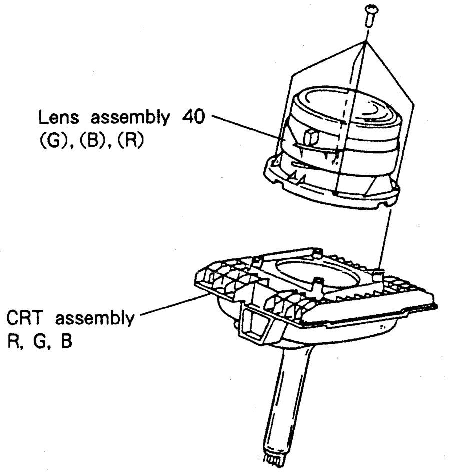


Fig. 3-2 Component parts for X-ray protection

4. HOW TO CLEAN

Note :
Cleaning liquid B4 (GEM1004) for LD players is usable for projection TV display.

Jigs

Use the following for cleaning optical components such as lens, mirror and screen.

Name	Number
Cleaning cloth, MINIMAX	GED-009
Cleaning liquid, B4	GEM1004

Note: Wear gloves when holding optical components lest you should make fingerprints.

4.1 Method of Cleaning Lenses and Mirrors

1. Remove dust with an airbrush.
2. Apply some cleaning liquid to the cloth and wipe the dirt off with the cloth.
3. If the component is not so dirty, moisten it with breath and wipe it with the cloth.

Note: Wipe it softly lest you should scratch the lens.

4.2 Screen Cleaning

1. Apply the cleaning liquid to the above cloth or similar soft cloth and wipe the dirt off. with the cloth.
2. Apply de-electrifier to the rear-surface or fresnel -lens side of the screen, or dust will stick on it.

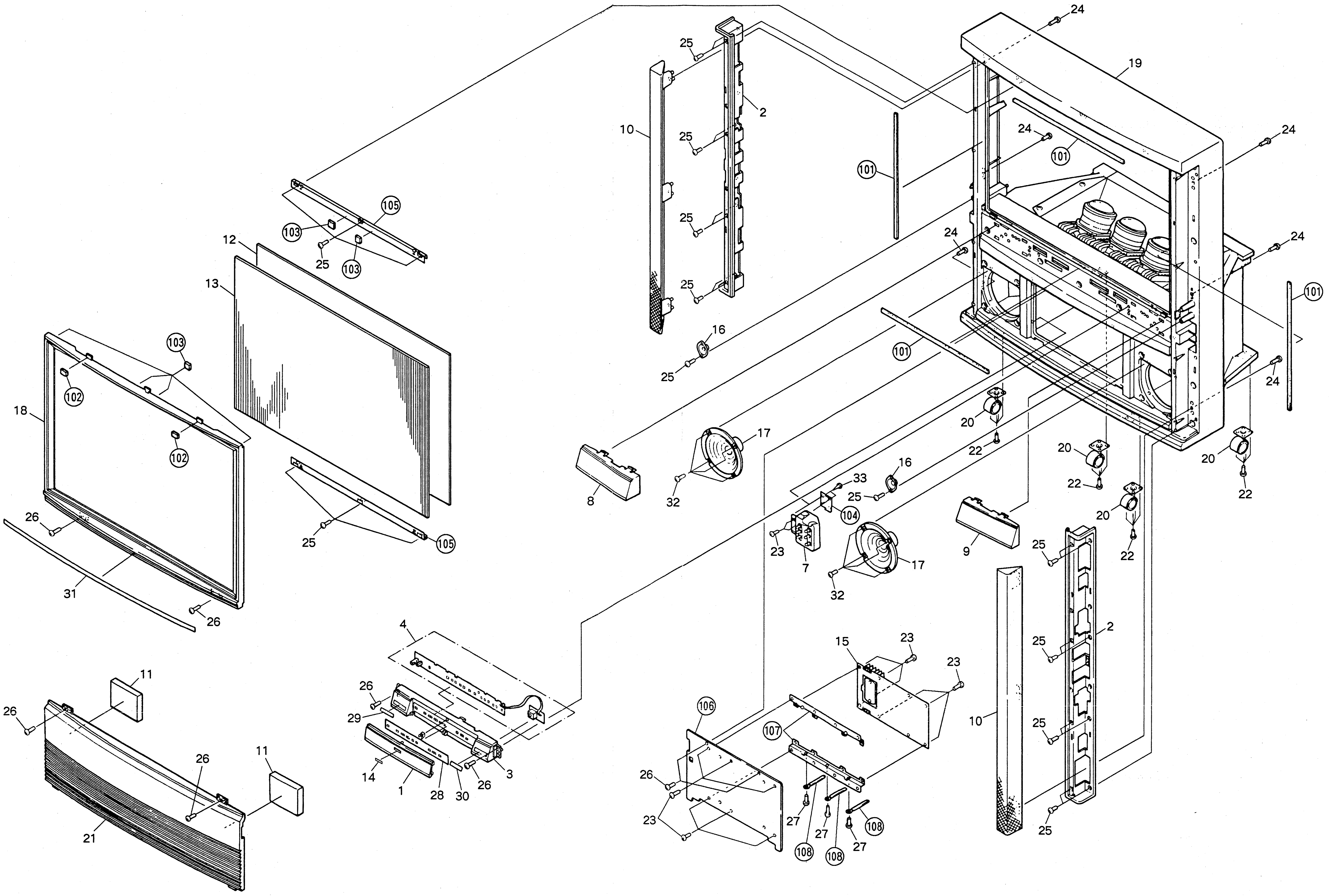
Note :

(1) Apply no alcoholic liquid such as thinner and benzine to the front surface lest the black printing on the rear surface should come off.

(2) Use Ascetete-cloth tape, GYH1001, for sticking Fresnel lens and lenticular sheet together.

5. EXPLODED VIEWS AND PARTS LIST

5.1 FRONT VIEW


24
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106
10
29
107
26
26
14
25
3
28
26
11
1
30
27
23
27
108
21
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27
108
25

NOTES :
- Parts without part number cannot be supplied.
- The ⚠ mark found on some component parts indicates the importance of the safety factor of the part. Therefore, when replacing, be sure to use parts of identical designation.
- Parts marked by "◉" are not always kept in stock. Their delivery time may be longer than usual or they may be unavailable.
- Parts marked by ☆ are important parts which use X – rays.
  If any of these parts need to be replaced, always replace with specified parts.

Parts List

Mark	No.	Part No.	Description
	1	AAN1122	Door
	2	AMB1488	Side grille
	3	AMB1475	Front panel
	4	AWZ2966	FRONT CONTROL assembly
	5	AEC1012	Catcher
	6		• • • • •
⚠	7	ACX1025	Focus variable resistor (VR1)
	8	AMB1476	Side panel L
	9	AMB1477	Side panel R
	10	AMR1722	Side SP net
	11	AEC1186	Grille cushion
	12	AMR2156	Fresnel lens
	13	AMR2159	Lenticular sheet
	14	AAM1033	Badge
	15	AWZ2963	CONVERGENCE assembly
	16	APT1003	Speaker (High range)
	17	APV1013	Speaker (Mid-low range)
	18	AMB1543	Screen frame (K)
	19	AMB1668	Front cabinet assembly K2
	20	AMR2127	Caster
	21	AMB1669	Grille (K2)
	22	BYC35P160FZK	Screw
	23	BBZ30P080FZK	Screw
	24	VPZ40P160FZK	Screw
	25	BPZ30P120FZK	Screw
	26	VPZ40P120FMC	Screw
	27	VCZ30P060FMC	Screw
	28	AAK1976	Plate A
	29	AAK1705	Plate B
	30	AAK1706	Plate C
	31	AAK1977	Plate D
	32	ABA1081	Screw
	33	BYC35P120FZB	Screw

Mark	No.	Part No.	Description
	101		S spacer
	102		SF spacer
	103		Cushion
	104		VR holder (40)
	105		Screen holder
	106		Blind plate
	107		Stay
	108		Binder

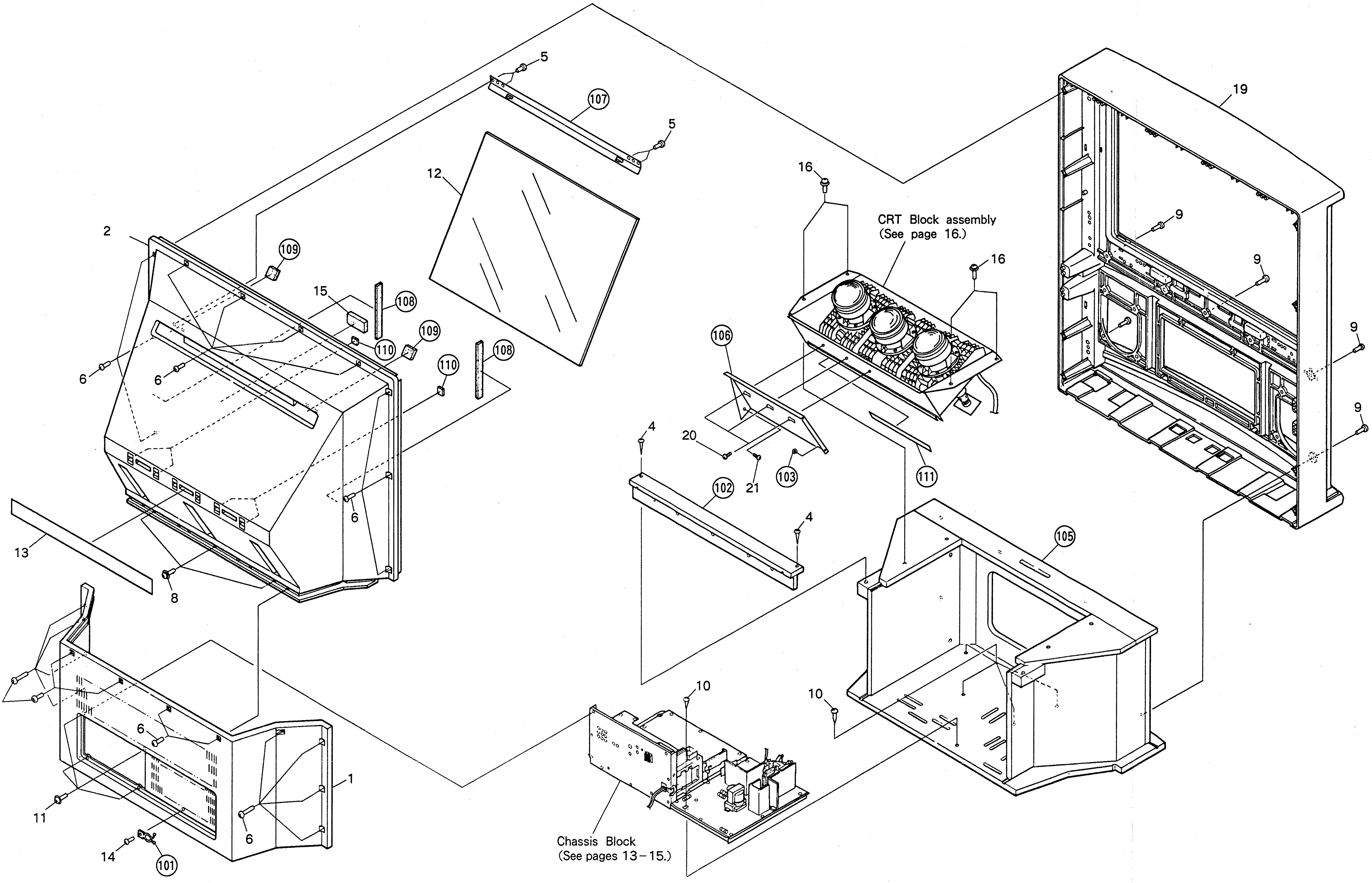
5.2 REAR VIEW

Parts List

Mark	No.	Part No.	Description
	1	AME1036	Rear cover
	2	AME1037	Mirror case
	3	BYC35P160FZK	Screw
	4	ABA1080	Screw
	5	ABA1069	Screw
	6	VPZ40P160FZK	Screw
	7		• • • • •
	8	PMB40P200FZB	Screw
	9	PMB50P250FZB	Screw
	10	ABA1038	Screw
	11	ABZ30P120FZK	Screw
	12	AMR1523	Mirror
	13	AEC1170	Rear sheet
	14	BPZ30P120FZK	Screw
	15	AEC1187	Mirror case cushion
	16	PMB50P180FZB	Screw
	17		• • • • •
	18	VBT30P080FZK	Screw
	19	AMB1668	Front cabinet assembly (K2)
	20	ABA1021	Screw
	21	VYC40P160FZK	Screw

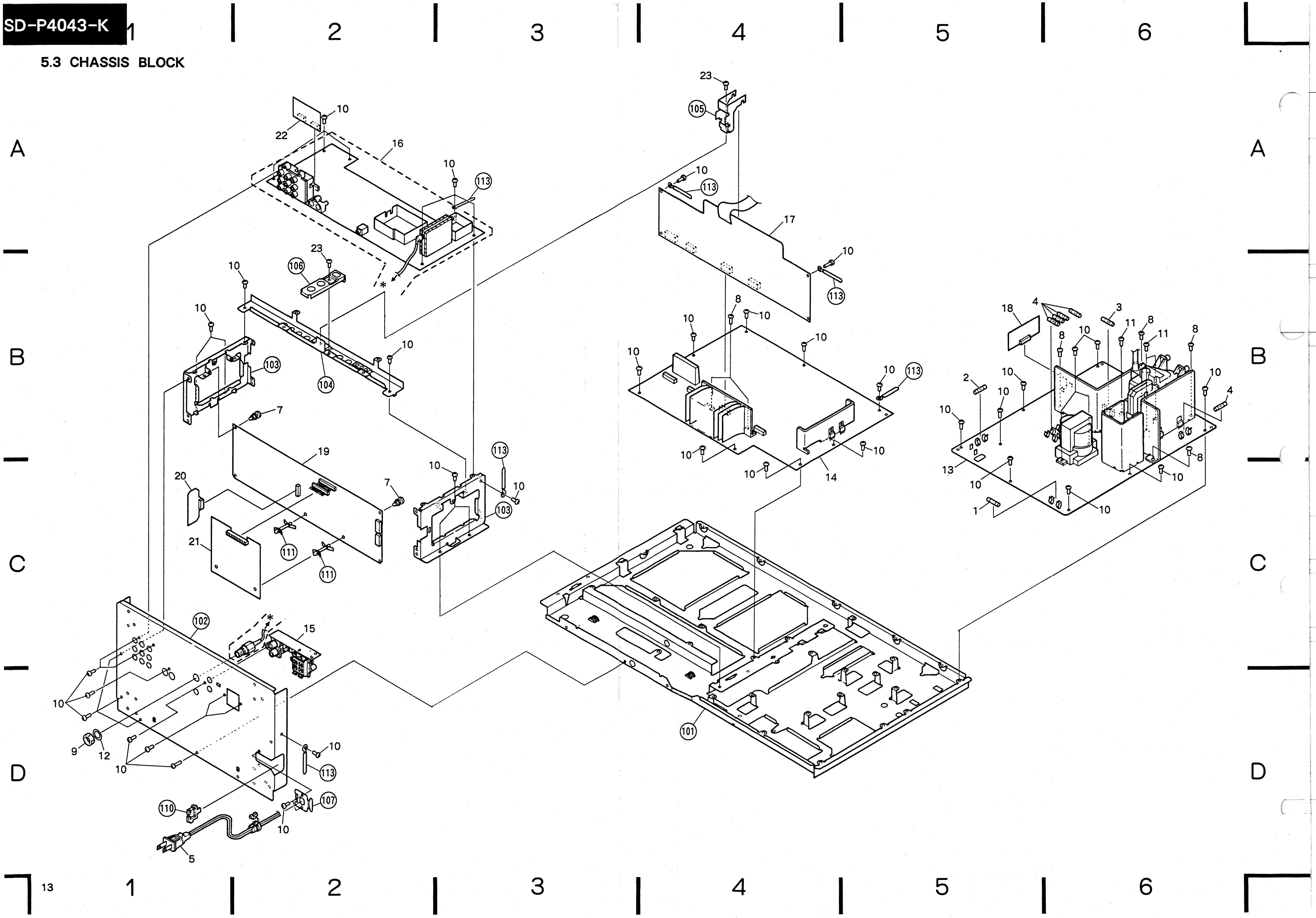
Mark	No.	Part No.	Description
	101		Cable clip
	102		Shield plate
	103		Washer (vinyl)
	104		• • • • •
	105		CRT block
	106		Shield plate
	107		Mirror holder stay
	108		Mirror cushion
	109		Cushion sheet B
	110		Cushion sheet A
	111		Stand cushion

A B C D


(107)
CRT Block assembly
(See page 16.)
(109)
(108)
(109)
(110)
(110)
(108)
(106)
(103)
(111)
(102)
(105)
(101)
Chassis Block
(See pages 13−15.)

A B C D

5.3 CHASSIS BLOCK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8
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11
3
2
4
14
13
20
21
111
1
*
102
15
101
9
12
110
107
5

Parts List

Mark	No.	Part No.	Description
⚠	1	AEK-309	Fuse (6.3A/125V, FU652)
⚠	2	AEK1002	Fuse (8A/125V, FU651)
⚠	3	AEK1012	Fuse (1A/125V, FU551)
⚠	4	AEK1018	Fuse (4A/125V, FU552,FU653 – FU656)
⚠	5	ADG1056	AC power cord
	6		• • • • •
	7	AEC-441	Plastic rivet
	8	ABA1099	Screw with bushing
	9	ABN-087	Nut
	10	BBZ30P080FZK	Screw
	11	VBZ30P200FMC	Screw
	12	VAX0F160N100	Washer
☆	13	AWV1146	POWER SUPPLY • DEFLECTION assembly
	14	AWZ2961	VERTICAL • VIDEO • AUDIO assembly
	15	AWZ2962	SP TERMINAL assembly
	16	AWZ2972	AV I/O-2P • TUNER assembly
	17	AWZ2976	MICOM • SURROUND assembly
	18	AWZ2965	SUB DEFLECTION assembly
	19	AWZ2954	PINP assembly
	20	AWZ3025	PINP SUB assembly
	21	AWZ2955	LOGIC assembly
	22	AWZ2956	PINP SELECT assembly
	23	BBZ30P060FMC	Screw

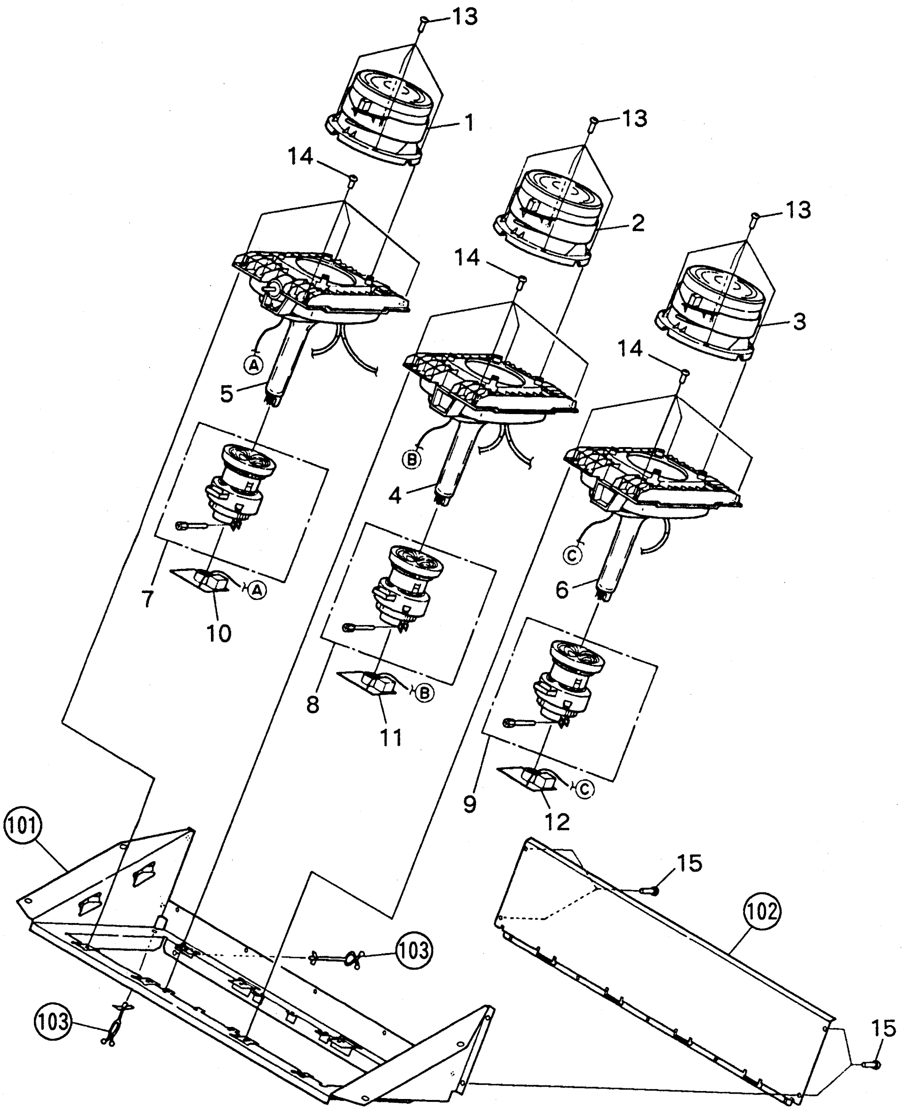
Mark	No.	Part No.	Description
	101		Chassis
	102		Rear panel
	103		Side frame
	104		Frame
	105		PCB holder A
	106		PCB holder B
	107		Cord plate
	108		• • • • •
	109		• • • • •
	110		Cord holder
	111		PCB support
	112		• • • • •
	113		Binder

5.4 CRT ASSEMBLY BLOCK

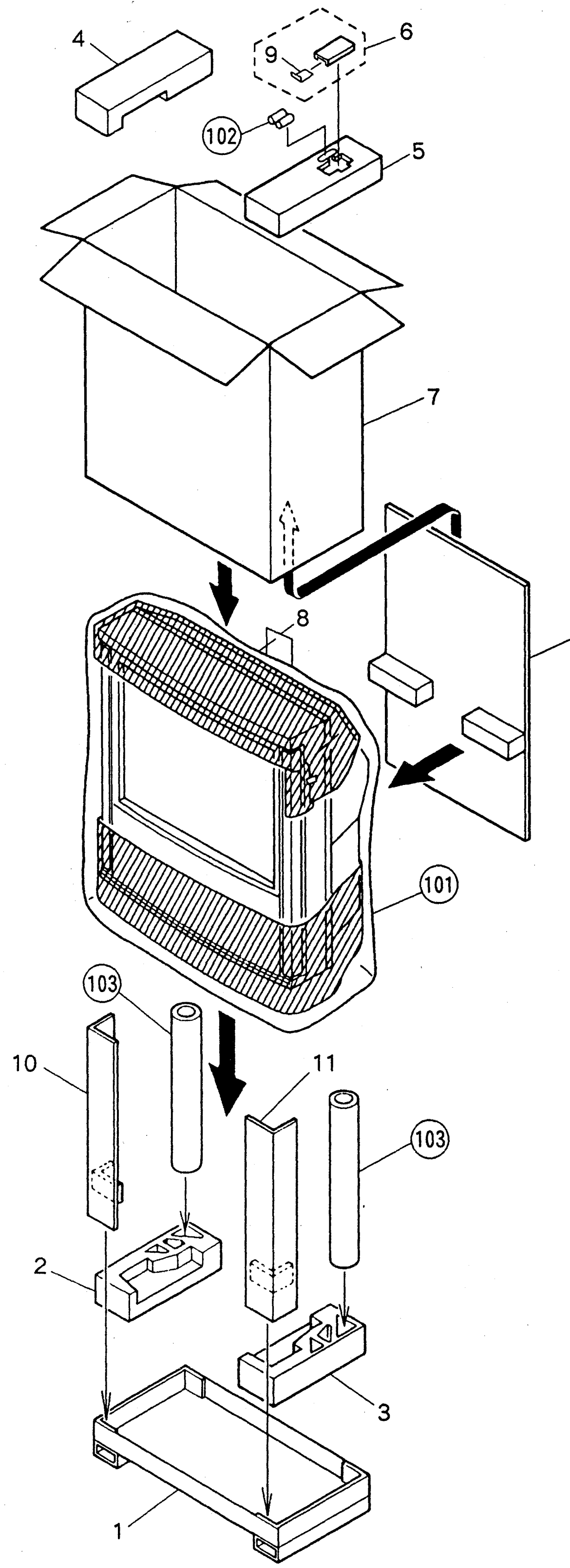
Parts List

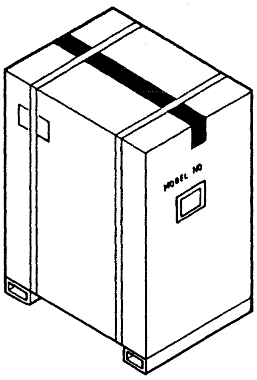
Mark	No.	Part No.	Description
☆	1	AMR2160	Lens assembly 40 (R)
☆	2	AMR2161	Lens assembly 40 (G)
☆	3	AMR2162	Lens assembly 40 (B)
⚠☆	4	AWY1085	CRT assembly G
⚠☆	5	AWY1086	CRT assembly R
⚠☆	6	AWY1087	CRT assembly B
⚠	7	ATL1061	Deflection yoke (R) (L1)
⚠	8	ATL1062	Deflection yoke (G) (L2)
⚠	9	ATL1063	Deflection yoke (B) (L3)
	10	AWZ2957	R. CRT DRIVE assembly
	11	AWZ2958	G. CRT DRIVE assembly
	12	AWZ2959	B. CRT DRIVE assembly
	13	AMZ40P080FZK	Screw
	14	FBT40P120FZK	Screw
	15	BBZ30P080FZK	Screw

Mark	No.	Part No.	Description
	101		CRT stand
	102		Cover L
	103		Lead clamper



6. PACKING



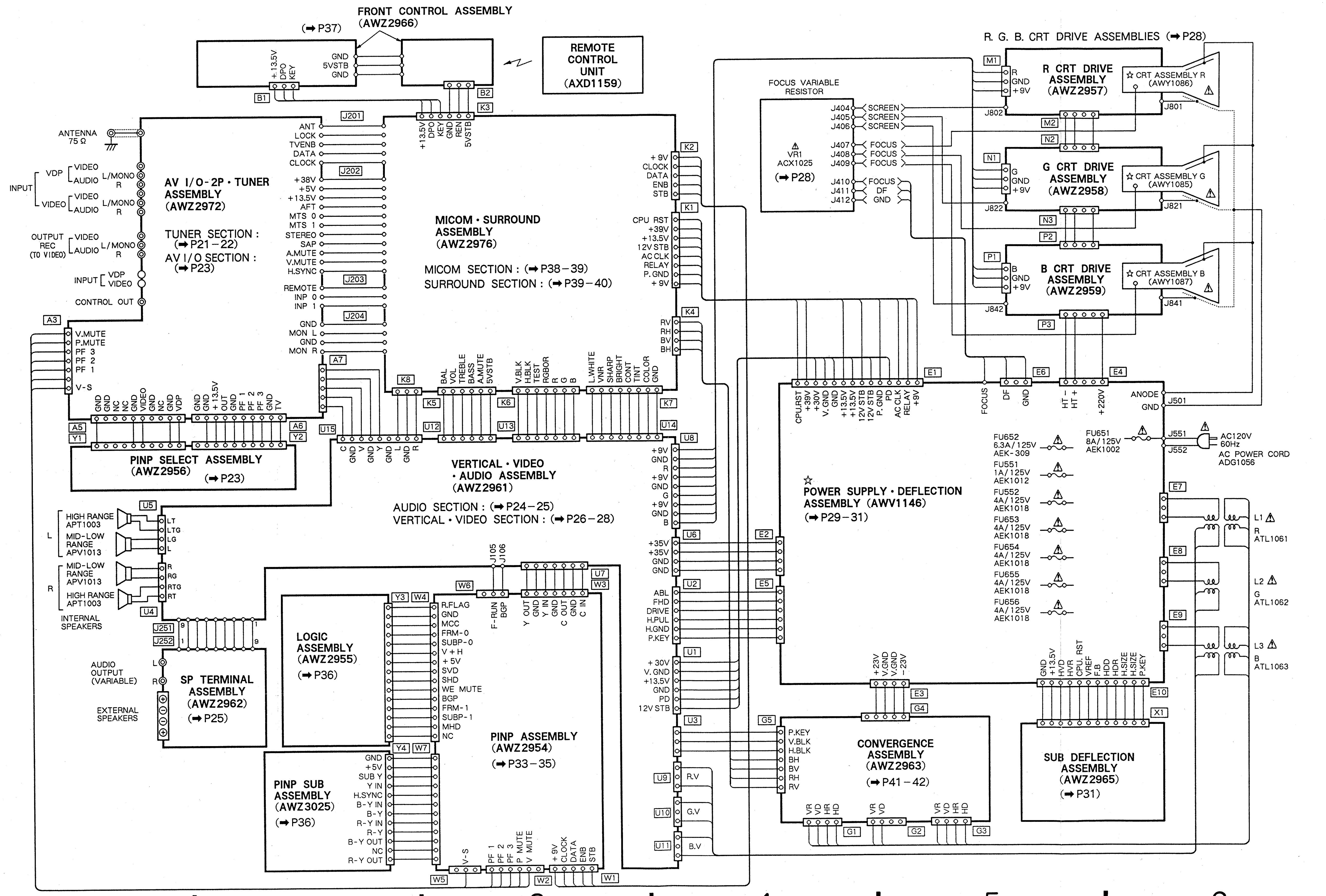


Parts List

Mark	No.	Part No.	Description
	1	AHD1686	Under carton
	2	AHA1264	Under pad L
	3	AHA1265	Under pad R
	4	AHA1262	Upper pad L
	5	AHA1263	Upper pad R
	6	AXD1159	Remote control unit
	7	AHD1874	Upper carton
	8	ARB1252	Operating instructions (English)
	9	AZA1138	Battery cover
	10	AHA1266	Side pad L
	11	AHA1267	Side pad R
	12	AHA1268	Rear pad
	101		Packing bag
	102		Battery
	103		Spiral tube

7. SCHEMATIC AND P. C. BOARDS DIAGRAM

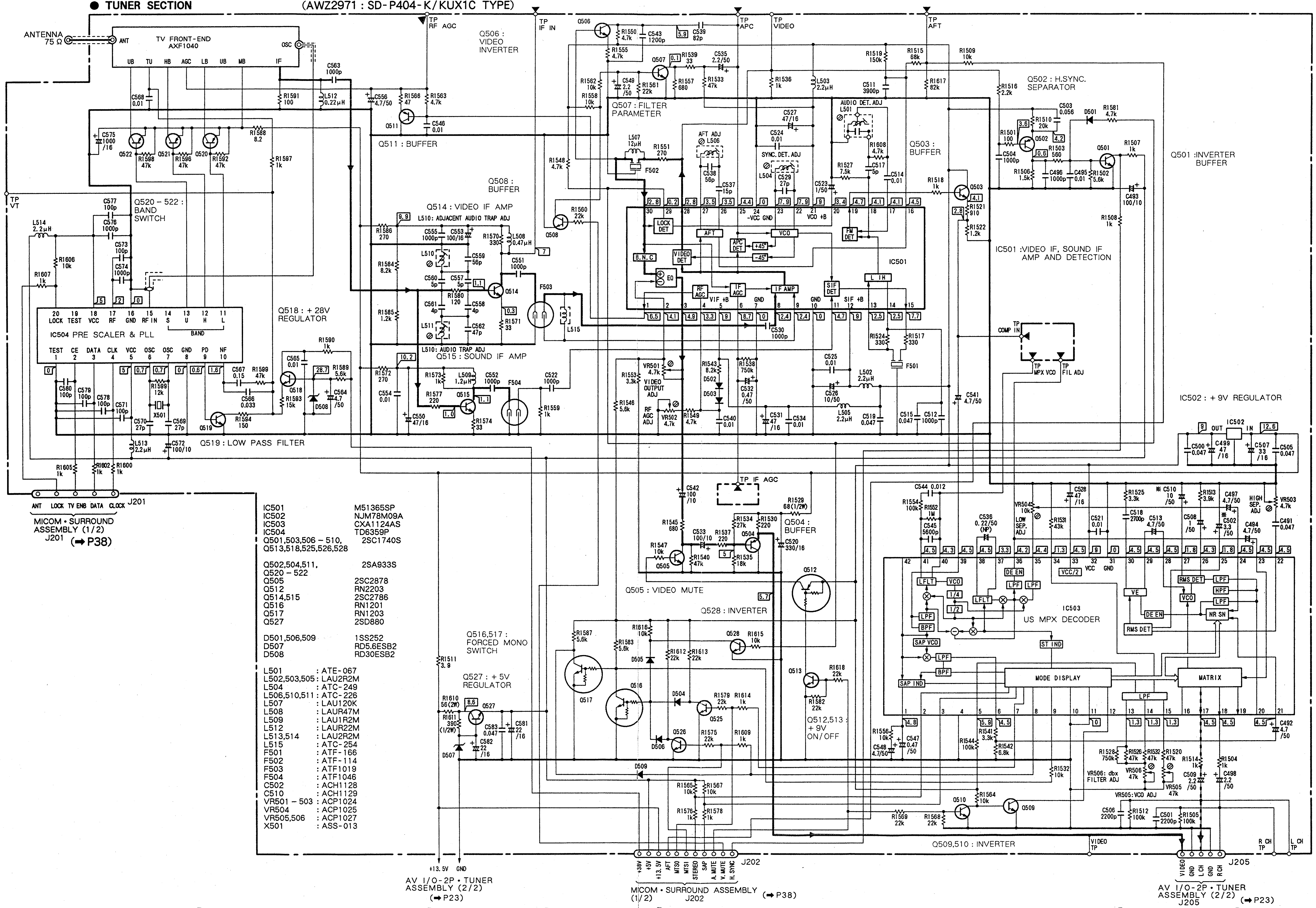
7.1 OVERALL WIRING DIAGRAM


FRONT CONTROL ASSEMBLY (AWZ2966) (➡P37)
REMOTE CONTROL UNIT (AXD1159)
ANTENNA 75 Ω
INPUT VDP VIDEO AUDIO L/MONO R
OUTPUT REC (TO VIDEO) VIDEO AUDIO L/MONO R
INPUT VDP VIDEO
CONTROL OUT
AV I/O-2P · TUNER ASSEMBLY (AWZ2972)
TUNER SECTION : (➡P21−22)
AV I/O SECTION : (➡P23)
MICOM · SURROUND ASSEMBLY (AWZ2976)
MICOM SECTION : (➡P38−39)
SURROUND SECTION : (➡P39−40)
PINP SELECT ASSEMBLY (AWZ2956) (➡P23)
VERTICAL · VIDEO · AUDIO ASSEMBLY (AWZ2961)
AUDIO SECTION : (➡P24−25)
VERTICAL · VIDEO SECTION : (➡P26−28)
HIGH RANGE APT1003
MID-LOW RANGE APV1013
INTERNAL SPEAKERS
AUDIO OUTPUT (VARIABLE)
EXTERNAL SPEAKERS
SP TERMINAL ASSEMBLY (AWZ2962) (➡P25)
LOGIC ASSEMBLY (AWZ2955) (➡P36)
PINP ASSEMBLY (AWZ2954) (➡P33−35)
PINP SUB ASSEMBLY (AWZ3025) (➡P36)
FOCUS VARIABLE RESISTOR
VR1 ACX1025 (➡P28)
R. G. B. CRT DRIVE ASSEMBLIES (➡P28)
R CRT DRIVE ASSEMBLY (AWZ2957)
☆ CRT ASSEMBLY R (AWY1086)
G CRT DRIVE ASSEMBLY (AWZ2958)
☆ CRT ASSEMBLY G (AWY1085)
B CRT DRIVE ASSEMBLY (AWZ2959)
☆ CRT ASSEMBLY B (AWY1087)
☆ POWER SUPPLY · DEFLECTION ASSEMBLY (AWV1146) (➡P29−31)
FU652 6.3A/125V AEK-309
FU551 1A/125V AEK1012
FU552 4A/125V AEK1018
FU653 4A/125V AEK1018
FU654 4A/125V AEK1018
FU655 4A/125V AEK1018
FU656 4A/125V AEK1018
FU651 8A/125V AEK1002
AC120V 60Hz
AC POWER CORD ADG1056
L1 R ATL1061
L2 G ATL1062
L3 B ATL1063
CONVERGENCE ASSEMBLY (AWZ2963) (➡P41−42)
SUB DEFLECTION ASSEMBLY (AWZ2965) (➡P31)

7.2 AV I/O-2P・TUNER ASSEMBLY (1/2 : TUNER SECTION)

AV I/O-2P・TUNER ASSEMBLY (1/2) (AWZ2972 : SD-P4043-K/KUX1C TYPE)
(AWZ2971 : SD-P404-K/KUX1C TYPE)

● TUNER SECTION


ANTENNA 75 Ω
TV FRONT-END AXF1040
TP RF AGC
TP IF IN
TP APC
TP VIDEO
TP AFT
TP VT
Q506 : VIDEO INVERTER
Q507 : FILTER PARAMETER
Q511 : BUFFER
Q508 : BUFFER
Q503 : BUFFER
Q502 : H.SYNC. SEPARATOR
Q501 : INVERTER BUFFER
Q520 – 522 : BAND SWITCH
Q514 : VIDEO IF AMP
Q515 : SOUND IF AMP
Q518 : +28V REGULATOR
Q519 : LOW PASS FILTER
IC504 PRE SCALER & PLL
IC501 : VIDEO IF, SOUND IF AMP AND DETECTION
IC502 : +9V REGULATOR
IC503 US MPX DECODER
AUDIO DET. ADJ
AFT ADJ
SYNC. DET. ADJ
L510 : ADJACENT AUDIO TRAP ADJ
L510 : AUDIO TRAP ADJ
VR501 VIDEO OUTPUT ADJ
VR502 RF AGC ADJ
TP COMP IN
TP MPX VCO
TP FIL ADJ
TP IF AGC
Q504 : BUFFER
Q505 : VIDEO MUTE
Q528 : INVERTER
Q516,517 : FORCED MONO SWITCH
Q527 : +5V REGULATOR
Q512,513 : +9V ON/OFF
Q509,510 : INVERTER
VR504 LOW SEP. ADJ
HIGH SEP. ADJ
VR506 : dbx FILTER ADJ
VR505 : VCO ADJ
MODE DISPLAY
MATRIX
J201
ANT LOCK TV ENB DATA CLOCK
MICOM・SURROUND ASSEMBLY (1/2) J201 (➡P38)
+13.5V GND
AV I/O-2P・TUNER ASSEMBLY (2/2) (➡P23)
J202
+28V +5V +13.5V AFT MTS0 MTS1 STEREO SAP A.MUTE V.MUTE H.SYNC
MICOM・SURROUND ASSEMBLY (1/2) J202 (➡P38)
VIDEO TP
R CH TP
L CH TP
J205
VIDEO GND L CH GND R CH
AV I/O-2P・TUNER ASSEMBLY (2/2) J205 (➡P23)

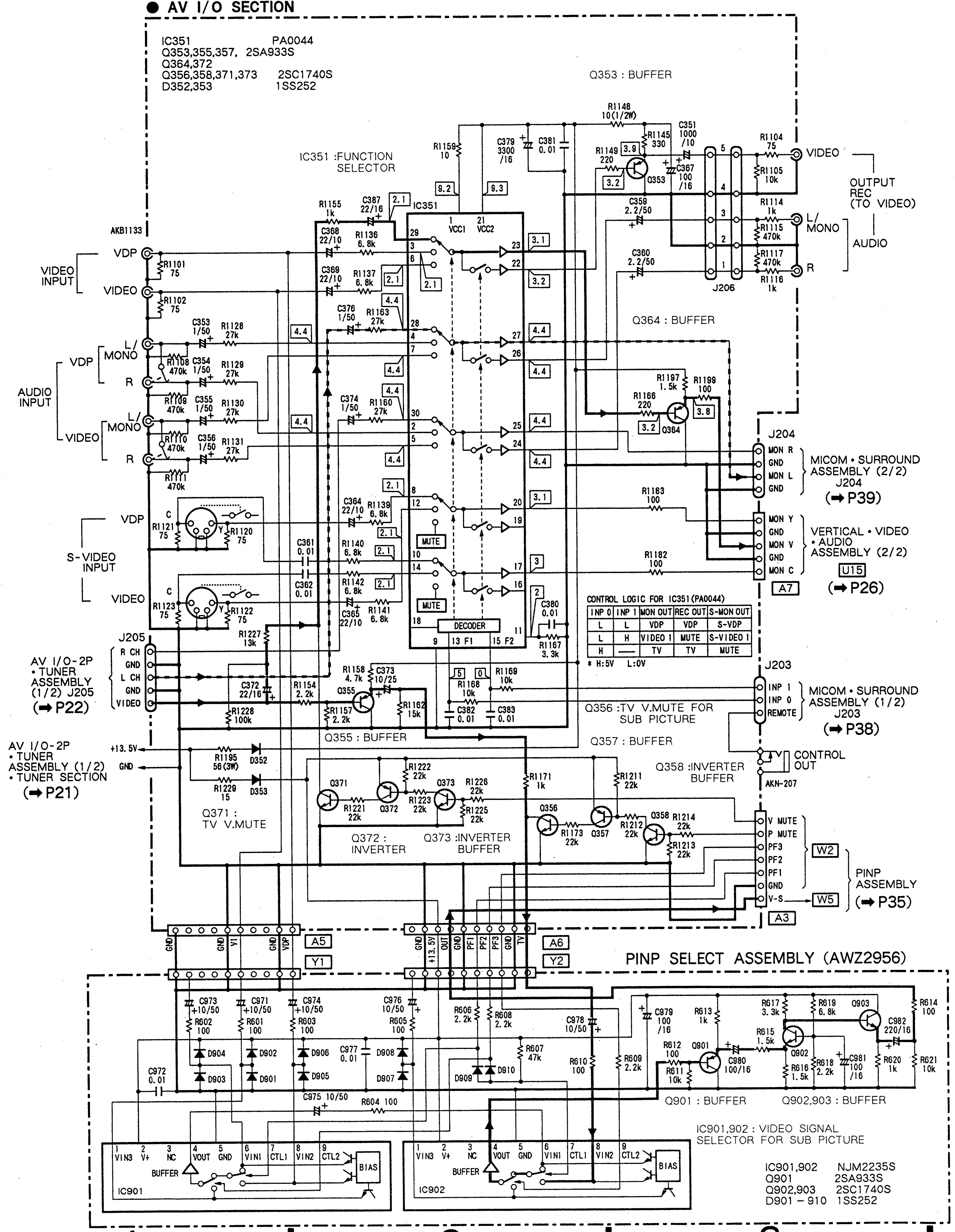
IC501	M51365SP
IC502	NJM78M09A
IC503	CXA1124AS
IC504	TD6359P
Q501,503,506 – 510, Q513,518,525,526,528	2SC1740S
Q502,504,511, Q520 – 522	2SA933S
Q505	2SC2878
Q512	RN2203
Q514,515	2SC2786
Q516	RN1201
Q517	RN1203
Q527	2SD880
D501,506,509	1SS252
D507	RD5.6ESB2
D508	RD30ESB2

L501 : ATE-067
L502,503,505 : LAU2R2M
L504 : ATC-249
L506,510,511 : ATC-226
L507 : LAU120K
L508 : LAUR47M
L509 : LAU1R2M
L512 : LAUR22M
L513,514 : LAU2R2M
L515 : ATC-254
F501 : ATF-166
F502 : ATF-114
F503 : ATF1019
F504 : ATF1046
C502 : ACH1128
C510 : ACH1129
VR501 – 503 : ACP1024
VR504 : ACP1025
VR505,506 : ACP1027
X501 : ASS-013

7.3 AV I/O-2P・TUNER ASSEMBLY (2/2 : AV I/O SECTION), PINP SELECT ASSEMBLY, VERTICAL・VIDEO・AUDIO ASSEMBLY (1/2 : AUDIO SECTION) AND SP TERMINAL ASSEMBLY

AV I/O-2P・TUNER ASSEMBLY (2/2) (AWZ2972)

● AV I/O SECTION


1
2
3
A
B
C
D
IC351 PA0044
Q353,355,357, 2SA933S
Q364,372
Q356,358,371,373 2SC1740S
D352,353 1SS252
Q353 : BUFFER
IC351 :FUNCTION SELECTOR
VIDEO
OUTPUT REC (TO VIDEO)
L/MONO
R
AUDIO
J206
Q364 : BUFFER
AKB1133
VDP
VIDEO INPUT
VIDEO
AUDIO INPUT
S-VIDEO INPUT
J204
MICOM・SURROUND ASSEMBLY (2/2) J204
(➡P39)
VERTICAL・VIDEO・AUDIO ASSEMBLY (2/2)
U15
(➡P26)
A7
J205
AV I/O-2P・TUNER ASSEMBLY (1/2) J205
(➡P22)
J203
MICOM・SURROUND ASSEMBLY (1/2) J203
(➡P38)
Q356 :TV V.MUTE FOR SUB PICTURE
Q357 : BUFFER
Q355 : BUFFER
CONTROL OUT
AKN-207
Q358 :INVERTER BUFFER
AV I/O-2P・TUNER ASSEMBLY (1/2)・TUNER SECTION
(➡P21)
Q371 : TV V.MUTE
Q372 : INVERTER
Q373 :INVERTER BUFFER
W2
PINP ASSEMBLY
W5
(➡P35)
A3
A5
Y1
A6
Y2
PINP SELECT ASSEMBLY (AWZ2956)
Q901 : BUFFER
Q902,903 : BUFFER
IC901,902 : VIDEO SIGNAL SELECTOR FOR SUB PICTURE
IC901,902 NJM2235S
Q901 2SA933S
Q902,903 2SC1740S
D901 – 910 1SS252
IC901
IC902
BUFFER
BIAS

CONTROL LOGIC FOR IC351(PA0044)

INP 0	INP 1	MON OUT	REC OUT	S-MON OUT
L	L	VDP	VDP	S-VDP
L	H	VIDEO 1	MUTE	S-VIDEO 1
H	——	TV	TV	MUTE

* H:5V L:0V

1. RESISTORS :
   Indicated in Ω, 1/4W, 1/6W and 1/8W, ±5% tolerance unless otherwise noted k ; kΩ, M ; MΩ, (F) ; ±1%, (G) ; ±2%, (K) ; ±10%, (M) ; ±20% tolerance.

2. CAPACITORS :
   Indicated in capacity (μF) / voltage (V) unless otherwise noted p ; pF. Indication without voltage is 50V except electrolytic capacitor.

3. VOLTAGE, CURRENT :
   ▭ ; DC voltage (V) at no input signal without notice. Value in ( ) is color bar signal input state.
   ⇦mA ; DC current at no input signal without notice.

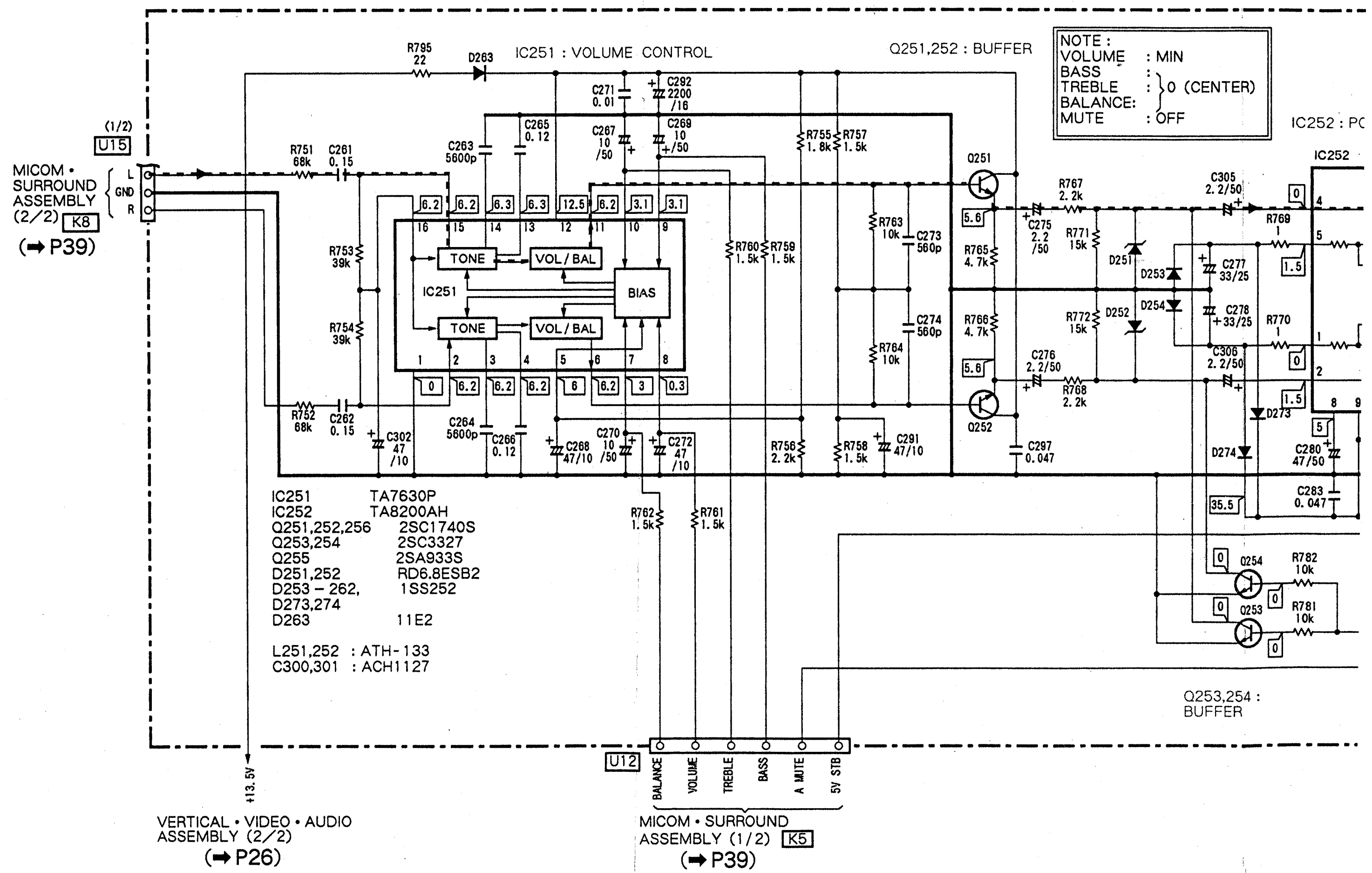
4. OTHERS :
   ➡ ; Signal route.
   ⊘ ; Adjusting point.

- The ⚠ mark found on some component parts indicates the importance of the safety factor of the part. Therefore, when replacing, be sure to use parts of identical designation.
- ※ marked capacitors and resistors have parts numbers.
- Parts marked by ☆ are important parts which use X-rays. If any of these parts need to be replaced, always replace with specified parts.
- Parts marked by × are important parts which use X-rays. If a failure occurs in any of these parts, replace the printed circuit board assembly where the relevant part has already been adjusted as a working component. Do not replace the actual part itself.
  If any part marked by × is replaced, there is danger of being exposed to X-rays.

This is the basic schematic diagram, but the actual circuit may vary due to improvements in design.

VERTICAL・VIDEO・AUDIO ASSEMBLY (1/2) (AWZ2961)

● AUDIO SECTION


4
5
6
IC251 : VOLUME CONTROL
Q251,252 : BUFFER
NOTE :
VOLUME : MIN
BASS
TREBLE : 0 (CENTER)
BALANCE:
MUTE : OFF
IC252 : P
(1/2)
U15
MICOM・SURROUND ASSEMBLY (2/2)
K8
(➡P39)
TONE
VOL/BAL
BIAS
IC251
IC251 TA7630P
IC252 TA8200AH
Q251,252,256 2SC1740S
Q253,254 2SC3327
Q255 2SA933S
D251,252 RD6.8ESB2
D253 – 262, 1SS252
D273,274
D263 11E2
L251,252 : ATH-133
C300,301 : ACH1127
Q253,254 : BUFFER
U12
BALANCE
VOLUME
TREBLE
BASS
A MUTE
5V STB
+13.5V
VERTICAL・VIDEO・AUDIO ASSEMBLY (2/2)
(➡P26)
MICOM・SURROUND ASSEMBLY (1/2)
K5
(➡P39)

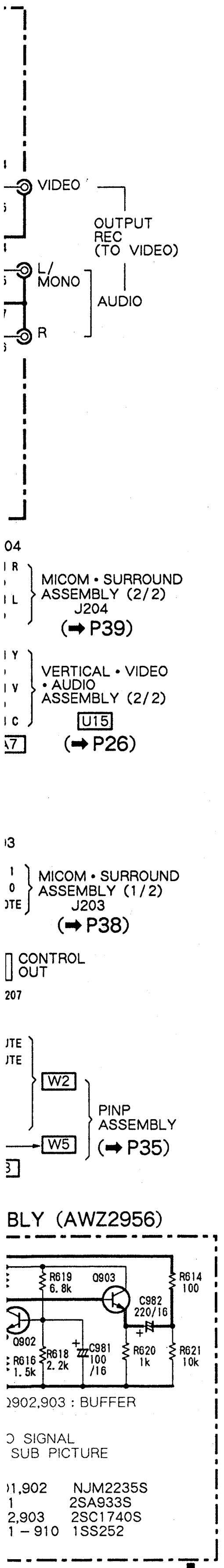
1. RESISTORS :
   Indicated in Ω, 1/4W, 1/6W and 1/8W, ±5% tolerance unless otherwise noted k; kΩ, M; MΩ, (F); ±1%, (G); ±2%, (K); ±10%, (M); ±20% tolerance.
2. CAPACITORS :
   Indicated in capacity (μF)/voltage (V) unless otherwise noted p; pF. Indication without voltage is 50V except electrolytic capacitor.
3. VOLTAGE, CURRENT :
   ▭ ; DC voltage (V) at no input signal without notice.
   Value in ( ) is color bar signal input state.
   ⇦mA ; DC current at no input signal without notice.

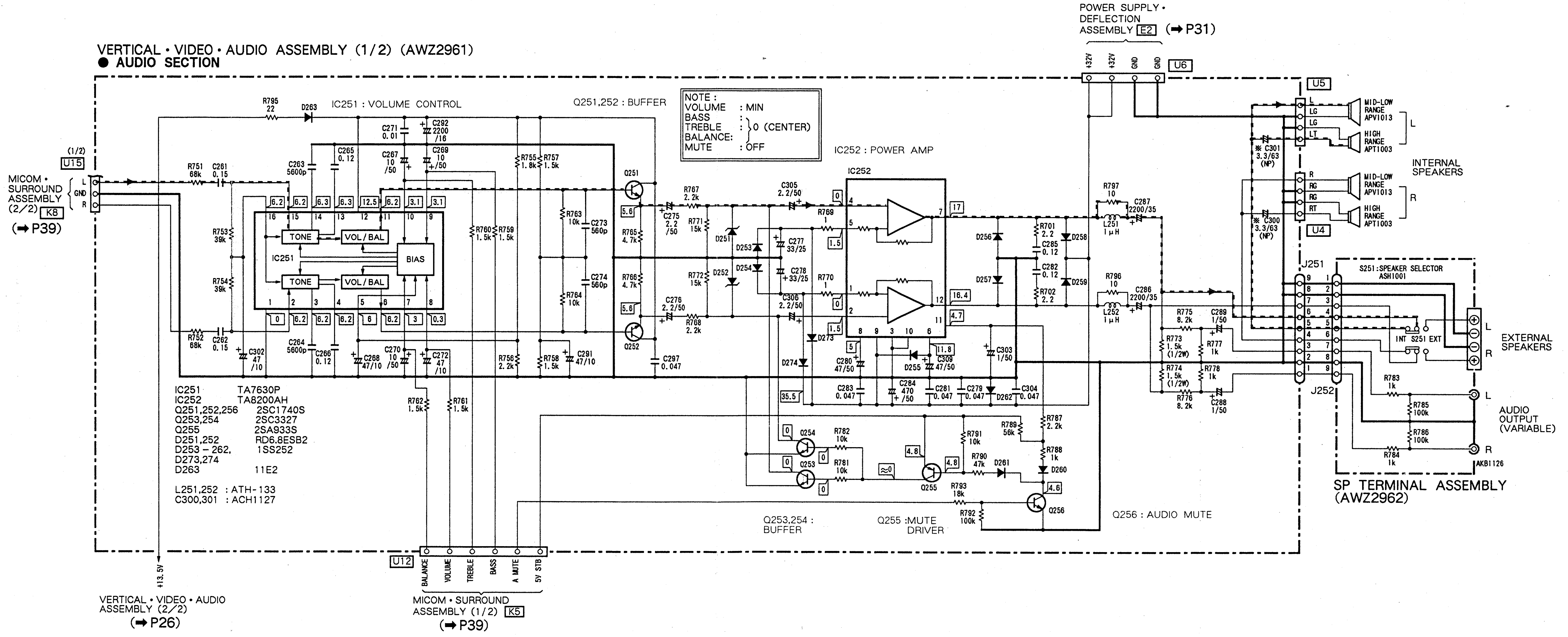
4. OTHERS :
   ➡ ; Signal route.
   ⊘ ; Adjusting point.
- The ⚠ mark found on some component parts indicates the importance of the safety factor of the part. Therefore, when replacing, be sure to use parts of identical designation.
- ※ marked capacitors and resistors have parts numbers.
- Parts marked by ☆ are important parts which use X-rays. If any of these parts need to be replaced, always replace with specified parts.
- Parts marked by × are important parts which use X-rays. If a failure occurs in any of these parts, replace the printed circuit board assembly where the relevant part has already been adjusted as a working component. Do not replace the actual part itself.
  If any part marked by × is replaced, there is danger of being exposed to X-rays.

This is the basic schematic diagram, but the actual circuit may vary due to improvements in design.

5. SIGNAL ROUTES
   ▨ CHARGED SECTION
   ── (VIDEO SIGNAL ROUTE
   Y SIGNAL
   COLOR SIGNAL ROUTE
   AUDIO IF ROUTE
   - - - AUDIO L CH ROUTE
   - - - - COMPONENT SIGNAL ROUTE
   - - - - H. DEFLECTION ROUTE
   V. DEFLECTION ROUTE
   ▨ R. SIGNAL ROUTE
   G. SIGNAL ROUTE
   ▨ B. SIGNAL ROUTE

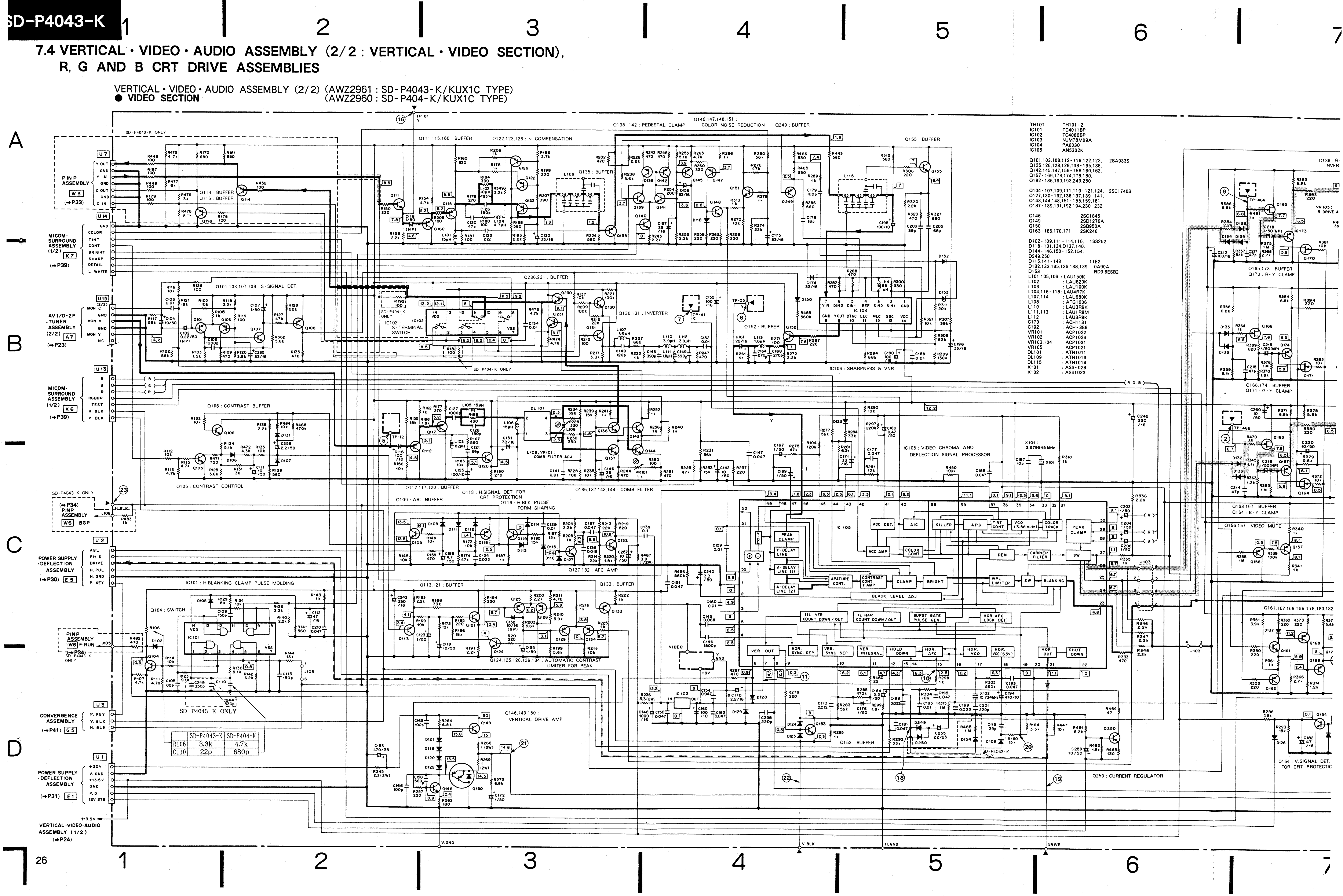
6. SWITCHES : (The underlined indicates the switch position)
   SP TERMINAL ASSEMBLY
   S251 : SPEAKER SELECTOR INT – EXT
   FRONT CONTROL ASSEMBLY
   S861 : POWER
   S862 : PINP ON/OFF
   S863 : SELECT/ADJUST –
   S864 : STD/AV MEM
   S865 : CHANNEL +
   S867 : PINP INPUT
   S868 : SELECT/ADJUST +
   S869 : DPO
   S870 : VOLUME –
   S871 : INPUT SELECTOR
   S872 : PRESET MENU ON/OFF
   S873 : SET
   S874 : FACTORY ADJ
   S875 : VOLUME +
   S876 : CHANNEL –


VIDEO
OUTPUT REC (TO VIDEO)
L/MONO
AUDIO
R
MICOM • SURROUND ASSEMBLY (2/2) J204
(➡P39)
VERTICAL • VIDEO • AUDIO ASSEMBLY (2/2)
U15
(➡P26)
MICOM • SURROUND ASSEMBLY (1/2) J203
(➡P38)
CONTROL OUT
W2
W5
PINP ASSEMBLY
(➡P35)
BLY (AWZ2956)
R619 6.8k
Q903
R614 100
C982 220/16
Q902
R616 1.5k
R618 2.2k
C981 100/16
R620 1k
R621 10k
Q902,903 : BUFFER
SIGNAL SUB PICTURE
NJM2235S
2SA933S
2SC1740S
1SS252


VERTICAL • VIDEO • AUDIO ASSEMBLY (1/2) (AWZ2961)
● AUDIO SECTION
POWER SUPPLY • DEFLECTION ASSEMBLY E2 (➡P31)
U6
+32V
+32V
GND
GND
NOTE :
VOLUME : MIN
BASS
TREBLE : 0 (CENTER)
BALANCE:
MUTE : OFF
IC251 : VOLUME CONTROL
Q251,252 : BUFFER
IC252 : POWER AMP
MICOM • SURROUND ASSEMBLY (2/2) K8 (➡P39)
(1/2) U15
TONE
VOL/BAL
BIAS
IC251
IC252
IC251 TA7630P
IC252 TA8200AH
Q251,252,256 2SC1740S
Q253,254 2SC3327
Q255 2SA933S
D251,252 RD6.8ESB2
D253 – 262, 1SS252
D273,274
D263 11E2
L251,252 : ATH-133
C300,301 : ACH1127
Q253,254 : BUFFER
Q255 : MUTE DRIVER
Q256 : AUDIO MUTE
U5
U4
MID-LOW RANGE APV1013
HIGH RANGE APT1003
INTERNAL SPEAKERS
J251
J252
S251 : SPEAKER SELECTOR ASH1001
INT S251 EXT
EXTERNAL SPEAKERS
AUDIO OUTPUT (VARIABLE)
AKB1126
SP TERMINAL ASSEMBLY (AWZ2962)
U12
BALANCE
VOLUME
TREBLE
BASS
A MUTE
5V STB
+13.5V
VERTICAL • VIDEO • AUDIO ASSEMBLY (2/2) (➡P26)
MICOM • SURROUND ASSEMBLY (1/2) K5 (➡P39)

7.4 VERTICAL · VIDEO · AUDIO ASSEMBLY (2/2 : VERTICAL · VIDEO SECTION), R, G AND B CRT DRIVE ASSEMBLIES

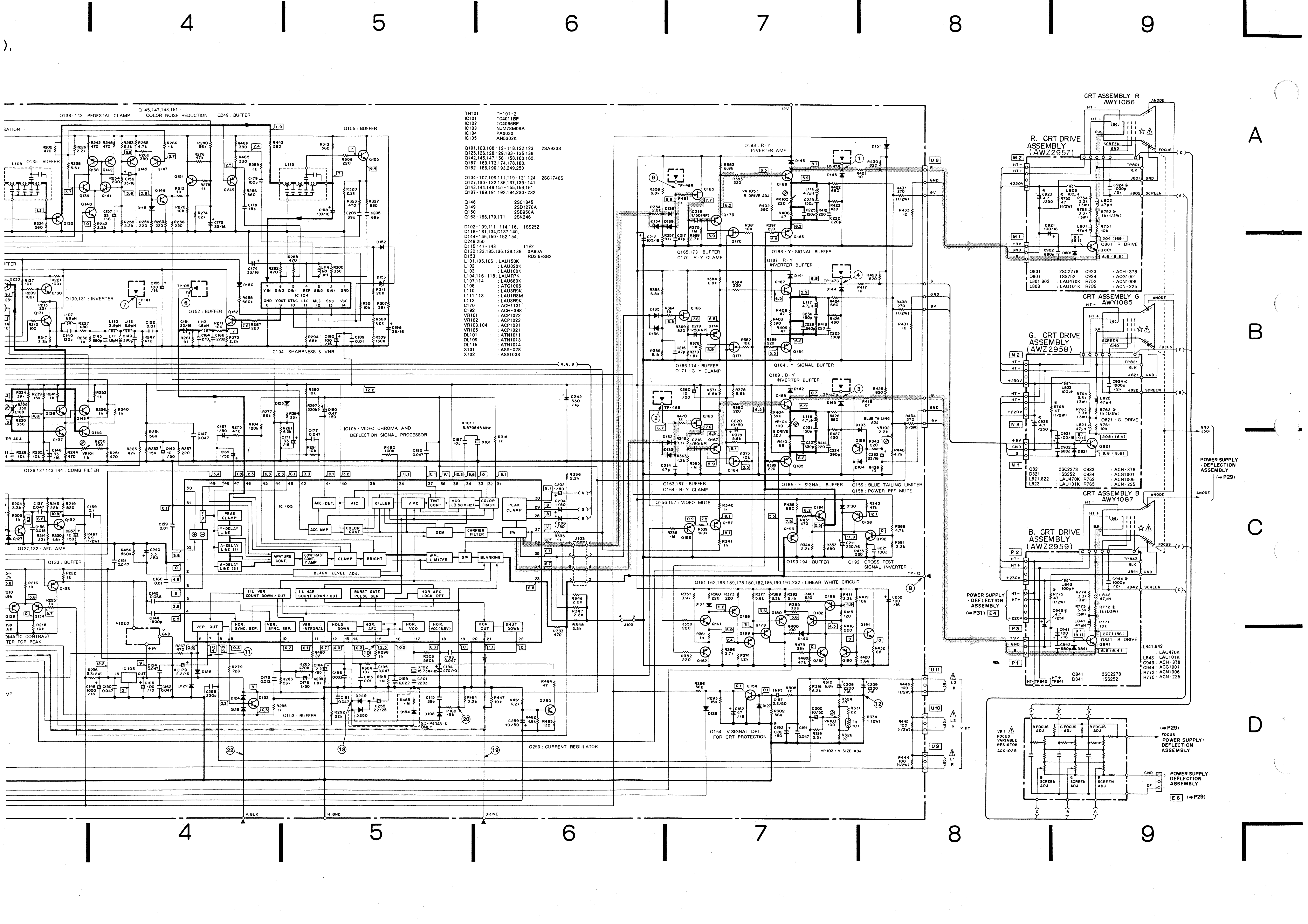
VERTICAL · VIDEO · AUDIO ASSEMBLY (2/2) (AWZ2961 : SD-P4043-K/KUX1C TYPE)
(AWZ2960 : SD-P404-K/KUX1C TYPE)
● VIDEO SECTION


1
2
3
4
5
6
7
A
B
C
D
SD-P4043-K ONLY
SD-P404-K ONLY
TP-01 Y
U7
Y OUT
GND
Y IN
GND
C OUT
GND
C IN
PINP ASSEMBLY
W3
(➡P33)
U14
MICOM-SURROUND ASSEMBLY (1/2)
K7
(➡P39)
COLOR
TINT
CONT
BRIGHT
SHARP
DETAIL
L.WHITE
U15
AV I/O-2P ·TUNER ASSEMBLY (2/2)
A7
(➡P23)
MON C
MON V
MON Y
NC
U13
K6
RGBOR
TEST
H.BLK
V.BLK
W6
BGP
F-RUN
(➡P34)
U2
POWER SUPPLY ·DEFLECTION ASSEMBLY
E5
(➡P30)
ABL
FH.D
DRIVE
H.PUL
H.GND
P.KEY
U3
CONVERGENCE ASSEMBLY
G5
(➡P41)
U1
E1
(➡P31)
+30V
V.GND
+13.5V
P.D
12V STB
+13.5V
VERTICAL·VIDEO·AUDIO ASSEMBLY (1/2)
(➡P24)
Q114 : BUFFER
Q116 : BUFFER
Q111,115,160 : BUFFER
Q122,123,126 : γ COMPENSATION
Q135 : BUFFER
Q138-142 : PEDESTAL CLAMP
Q145,147,148,151 : COLOR NOISE REDUCTION
Q249 : BUFFER
Q155 : BUFFER
Q101,103,107,108 : S SIGNAL DET.
Q230,231 : BUFFER
IC102 : S-TERMINAL SWITCH
Q130,131 : INVERTER
Q152 : BUFFER
IC104
IC104 : SHARPNESS & VNR
Q106 : CONTRAST BUFFER
Q105 : CONTRAST CONTROL
Q112,117,120 : BUFFER
DL101
L108, VR101 : COMB FILTER ADJ.
Q136,137,143,144 : COMB FILTER
IC105 : VIDEO CHROMA AND DEFLECTION SIGNAL PROCESSOR
X101 : 3.579545MHz
Q109 : ABL BUFFER
Q118 : H.SIGNAL DET. FOR CRT PROTECTION
Q119 : H.BLK PULSE FORM SHAPING
Q127,132 : AFC AMP
IC101 : H.BLANKING CLAMP PULSE MOLDING
Q104 : SWITCH
Q113,121 : BUFFER
Q133 : BUFFER
Q124,125,128,129,134 : AUTOMATIC CONTRAST LIMITER FOR PEAK
IC105
PEAK CLAMP
Y-DELAY LINE
A-DELAY LINE (1)
A-DELAY LINE (2)
APATURE CONT.
CONTRAST CONT. Y AMP
CLAMP
BRIGHT
WPL LIMITER
SW
BLANKING
BLACK LEVEL ADJ.
ACC DET.
AIC
KILLER
APC
TINT CONT
VCO (3.58MHz)
COLOR TRACK
PEAK CLAMP
ACC AMP
COLOR CONT
DEM
CARRIER FILTER
SW
IIL VER COUNT DOWN/OUT
IIL HAR COUNT DOWN/OUT
BURST GATE PULSE GEN.
HOR AFC LOCK DET.
VER. OUT
HOR. SYNC. SEP.
VER. SYNC. SEP.
VER INTEGRAL
HOLD DOWN
HOR. AFC
HOR. VCO
HOR. VCC(6.3V)
HOR. OUT
SHUT DOWN
IC103
VIDEO
V.GND
+9V
Q146,149,150 : VERTICAL DRIVE AMP
Q153 : BUFFER
Q250 : CURRENT REGULATOR
X102 15.734kHz
Q165,173 : BUFFER
Q170 : R-Y CLAMP
Q166,174 : BUFFER
Q171 : G-Y CLAMP
Q163,167 : BUFFER
Q164 : B-Y CLAMP
Q156,157 : VIDEO MUTE
Q188 : R INVER
VR105 : R DRIVE A
Q154 : V.SIGNAL DET. FOR CRT PROTECTIO
TP-46R
TP-46B
TP-41
TP-05 Y
TP-12
R.G.B
Y
V.GND
V.BLK
H.GND
DRIVE
J103
J105
J106
①
②
⑤
⑥
⑦
⑨
⑩
⑪
⑯
⑱
⑲
⑳
㉑
㉒
㉓

	SD-P4043-K	SD-P404-K
R106	3.3k	4.7k
C110	22p	680p

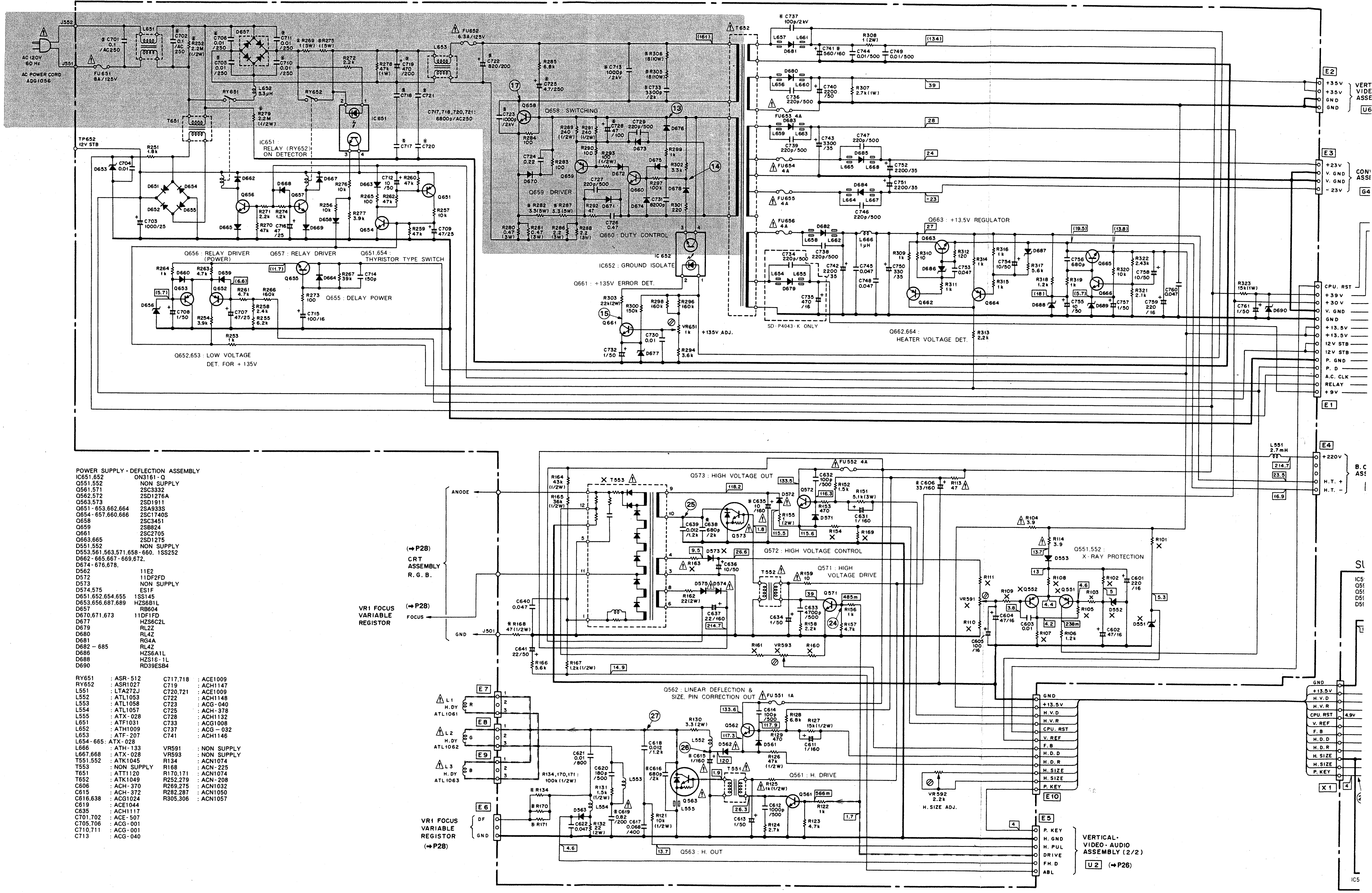
TH101	TH101-2
IC101	TC4011BP
IC102	TC4066BP
IC103	NJM78M09A
IC104	PA0030
IC105	AN5302K
Q101,103,108,112-118,122,123, Q125,126,128,129,133-135,138, Q142,145,147,156-158,160,162, Q167-169,173,174,178,180, Q182-186,190,193,249,250	2SA933S
Q104-107,109,111,119-121,124, Q127,130-132,136,137,139-141, Q143,144,148,151-155,159,161, Q187-189,191,192,194,230-232	2SC1740S
Q146	2SC1845
Q149	2SD1276A
Q150	2SB950A
Q163-166,170,171	2SK246
D102-109,111-114,116, D118-131,134,D137,140, D144-146,150-152,154, D249,250	1SS252
D115,141-143	11E2
D132,133,135,136,138,139	0A90A
D153	RD3.6ESB2
L101,105,106	LAU150K
L102	LAU820K
L103	LAU100K
L104,116-118	LAU4R7K
L107,114	LAU680K
L108	ATG1006
L110	LAU3R9K
L111,113	LAU1R8M
L112	LAU3R9K
C170	ACH1131
C192	ACH-388
VR101	ACP1022
VR102	ACP1023
VR103,104	ACP1031
VR105	ACP1021
DL101	ATN1011
DL109	ATN1013
DL115	ATN1014
X101	ASS-028
X102	ASS1033

),


4
5
6
7
8
9
A
B
C
D
Q138 · 142 : PEDESTAL CLAMP
Q145,147,148,151 : COLOR NOISE REDUCTION
Q249 : BUFFER
Q155 : BUFFER
Q135 : BUFFER
Q130,131 : INVERTER
Q152 : BUFFER
TP-41
TP-05
IC104 : SHARPNESS & VNR
Q136,137,143,144 : COMB FILTER
IC 105 : VIDEO CHROMA AND DEFLECTION SIGNAL PROCESSOR
X101 : 3.579545 MHz
ACC DET.
AIC
KILLER
APC
TINT CONT
VCO (3.58MHz)
COLOR TRACK
PEAK CLAMP
ACC AMP
COLOR CONT
DEM
CARRIER FILTER
SW
Y-DELAY LINE
A-DELAY LINE (1)
A-DELAY LINE (2)
APATURE CONT.
CONTRAST CONT. Y AMP
CLAMP
BRIGHT
WPL LIMITER
SW
BLANKING
BLACK LEVEL ADJ.
11L VER COUNT DOWN / OUT
11L HAR COUNT DOWN / OUT
BURST GATE PULSE GEN.
HOR AFC LOCK DET.
VER. OUT
HOR. SYNC. SEP.
VER. SYNC. SEP.
VER. INTEGRAL
HOLD DOWN
HOR. AFC
HOR. VCO
HOR. VCC(6.3V)
HOR. OUT
SHUT DOWN
Q127,132 : AFC AMP
Q133 : BUFFER
VIDEO
Q153 : BUFFER
SD-P4043-K ONLY
Q250 : CURRENT REGULATOR
V.BLK
H.GND
DRIVE
R.G.B
Q188 : R-Y INVERTER AMP
TP-46R
TP-47R
VR 105 : R DRIVE ADJ
Q165,173 : BUFFER
Q170 : R-Y CLAMP
Q183 : Y-SIGNAL BUFFER
Q187 : R-Y INVERTER BUFFER
TP-47G
Q166,174 : BUFFER
Q171 : G-Y CLAMP
Q184 : Y-SIGNAL BUFFER
Q189 : B-Y INVERTER BUFFER
TP-46B
TP-47B
B DRIVE ADJ
BLUE TAILING ADJ
Q163,167 : BUFFER
Q164 : B-Y CLAMP
Q185 : Y SIGNAL BUFFER
Q159 : BLUE TAILING LIMITER
Q158 : POWER PFF MUTE
Q156,157 : VIDEO MUTE
Q193,194 : BUFFER
Q192 : CROSS TEST SIGNAL INVERTER
TP-13
Q161,162,168,169,178,180,182,186,190,191,232 : LINEAR WHITE CIRCUIT
Q154 : V.SIGNAL DET. FOR CRT PROTECTION
VR103 : V SIZE ADJ
J103
U8
U9
U10
U11
V DY
CRT ASSEMBLY R AWY1086
R. CRT DRIVE ASSEMBLY (AWZ2957)
Q801 R DRIVE
Q801 2SC2278 C923 : ACH-378
D801 1SS252 C924 : ACG1001
L801,802 : LAU470K R752 : ACN1006
L803 : LAU101K R755 : ACN-225
CRT ASSEMBLY G AWY1085
G. CRT DRIVE ASSEMBLY (AWZ2958)
Q821 : G. DRIVE
Q821 2SC2278 C933 : ACH-378
D821 1SS252 C934 : ACG1001
L821,822 : LAU470K R762 : ACN1006
L823 : LAU101K R765 : ACN-225
CRT ASSEMBLY B AWY1087
B. CRT DRIVE ASSEMBLY (AWZ2959)
Q841 : B. DRIVE
Q841 2SC2278
D841 1SS252
L841,842 : LAU470K
L843 : LAU101K
C943 : ACH-378
C944 : ACG1001
R772 : ACN1006
R775 : ACN-225
ANODE
SCREEN
FOCUS
HT -
HT +
GND J501
POWER SUPPLY · DEFLECTION ASSEMBLY (➡P29)
POWER SUPPLY · DEFLECTION ASSEMBLY (➡P31) E4
VR1 FOCUS VARIABLE RESISTOR ACX1025
B FOCUS ADJ
G FOCUS ADJ
R FOCUS ADJ
B SCREEN ADJ
G SCREEN ADJ
R SCREEN ADJ
(➡P29) FOCUS POWER SUPPLY · DEFLECTION ASSEMBLY
POWER SUPPLY · DEFLECTION ASSEMBLY
E6 (➡P29)
TH101 TH101-2
IC101 TC4011BP
IC102 TC4066BP
IC103 NJM78M09A
IC104 PA0030
IC105 AN5302K
Q101,103,108,112-118,122,123, 2SA933S
Q125,126,128,129,133-135,138,
Q142,145,147,156-158,160,162,
Q167-169,173,174,178,180,
Q182-186,190,193,249,250
Q104-107,109,111,119-121,124, 2SC1740S
Q127,130-132,136,137,139-141,
Q143,144,148,151-155,159,161,
Q187-189,191,192,194,230-232
Q146 2SC1845
Q149 2SD1276A
Q150 2SB950A
Q163-166,170,171 2SK246
D102-109,111-114,116, 1SS252
D118-131,134,D137,140,
D144-146,150-152,154,
D249,250
D115,141-143 11E2
D132,133,135,136,138,139 0A90A
D153 RD3.6ESB2
L101,105,106 : LAU150K
L102 : LAU820K
L103 : LAU100K
L104,116-118: LAU4R7K
L107,114 : LAU680K
L108 : ATG1006
L110 : LAU3R9K
L111,113 : LAU1R8M
L112 : LAU3R9K
C170 : ACH1131
C192 : ACH-388
VR101 : ACP1022
VR102 : ACP1023
VR103,104 : ACP1031
VR105 : ACP1021
DL101 : ATN1011
DL109 : ATN1013
DL115 : ATN1014
X101 : ASS-028
X102 : ASS1033

7.5 POWER SUPPLY · DEFLECTION AND SUB DEFLECTION ASSEMBLIES

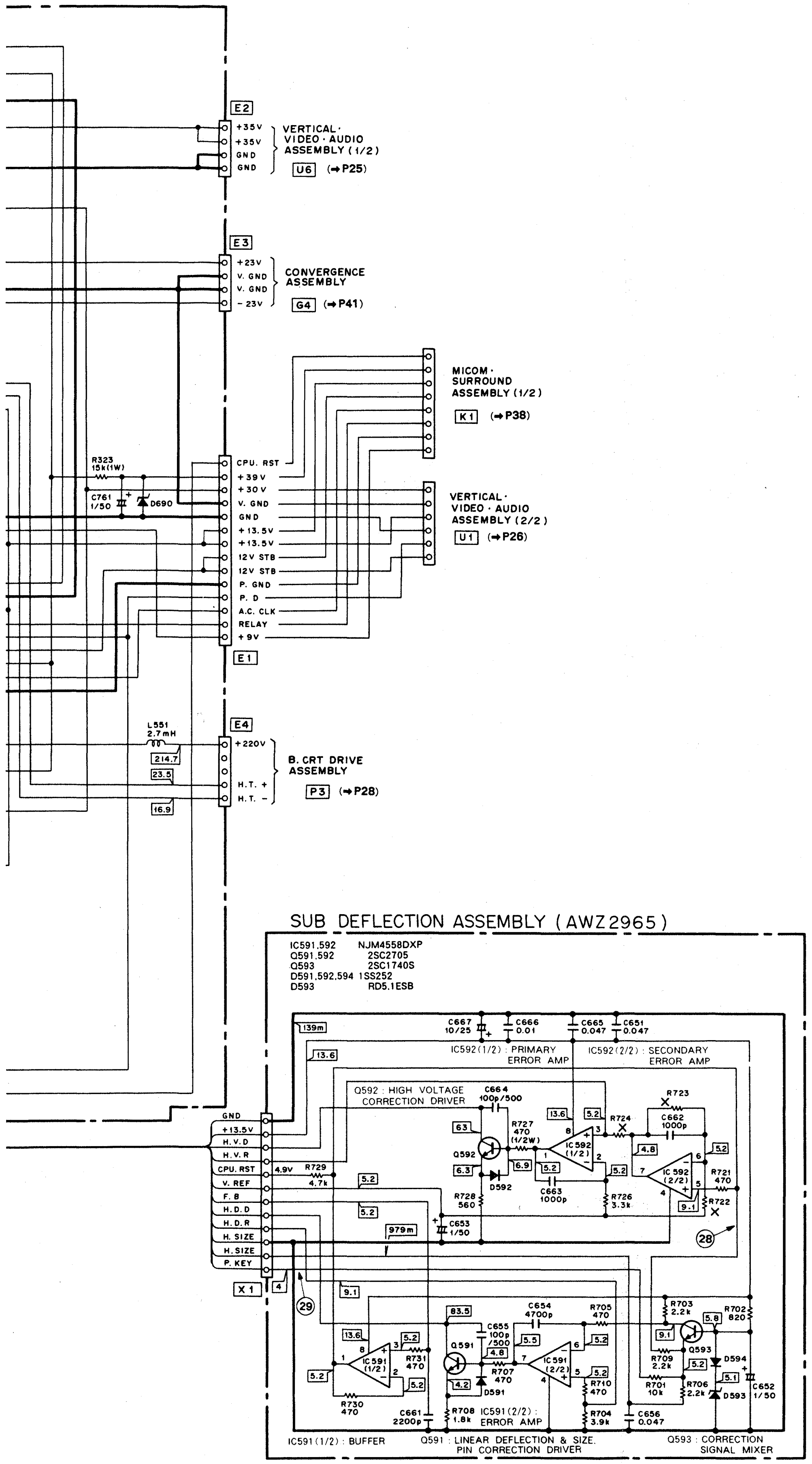
☆POWER SUPPLY DEFLECTION ASSEMBLY (AWV1146 : SD-P4043-K) (AWV1145 : SD-P404-K)


1
2
3
4
5
6
A
B
C
D
AC 120V 60 Hz
AC POWER CORD ADG1056
J552
J551
FU651 6A/125V
FU652 6.3A/125V
RY651
RY652
IC651 RELAY (RY652) ON DETECTOR
IC651
T651
TP652 12V STB
C717,718,720,721: 6800p/AC250
Q658 : SWITCHING
Q659 : DRIVER
Q660 : DUTY CONTROL
IC652 : GROUND ISOLATE
IC652
Q661 : +135V ERROR DET.
VR651 1k +135V ADJ.
T652
Q656 : RELAY DRIVER (POWER)
Q657 : RELAY DRIVER
Q651,654 : THYRISTOR TYPE SWITCH
Q655 : DELAY POWER
Q652,653 : LOW VOLTAGE DET. FOR +135V
SD-P4043-K ONLY
Q663 : +13.5V REGULATOR
Q662,664 : HEATER VOLTAGE DET.
E2
+35V
+35V
GND
GND
VERT VIDE ASSE
U6
E3
+23V
V. GND
V. GND
-23V
CONV ASSE
G4
CPU. RST
+39V
+30V
V. GND
GND
+13.5V
+13.5V
12V STB
12V STB
P. GND
P. D
A.C. CLK
RELAY
+9V
E1
E4
+220V
H.T. +
H.T. −
B.C ASS
L551 2.7mH
ANODE
(→P28) CRT ASSEMBLY R.G.B.
VR1 FOCUS VARIABLE REGISTOR
(→P28) FOCUS
GND
J501
T553
Q573 : HIGH VOLTAGE OUT
FU552 4A
Q572 : HIGH VOLTAGE CONTROL
Q571 : HIGH VOLTAGE DRIVE
Q551,552 : X-RAY PROTECTION
T552
VR591
VR593
L1 H.DY ATL1061
L2 H.DY ATL1062
L3 H.DY ATL1063
E7
E8
E9
E6
DF
GND
VR1 FOCUS VARIABLE REGISTOR (→P28)
Q562 : LINEAR DEFLECTION & SIZE, PIN CORRECTION OUT
FU551 1A
Q561 : H. DRIVE
Q563 : H. OUT
T551
L552
L553
L554
L555
VR592 2.2k H. SIZE ADJ.
GND
+13.5V
H.V.D
H.V.R
CPU. RST
V. REF
F.B
H.D.D
H.D.R
H. SIZE
H. SIZE
P. KEY
E10
E5
P. KEY
H. GND
H. PUL
DRIVE
FH. D
ABL
VERTICAL· VIDEO· AUDIO ASSEMBLY (2/2)
U2 (→P26)
X1
SU
IC5

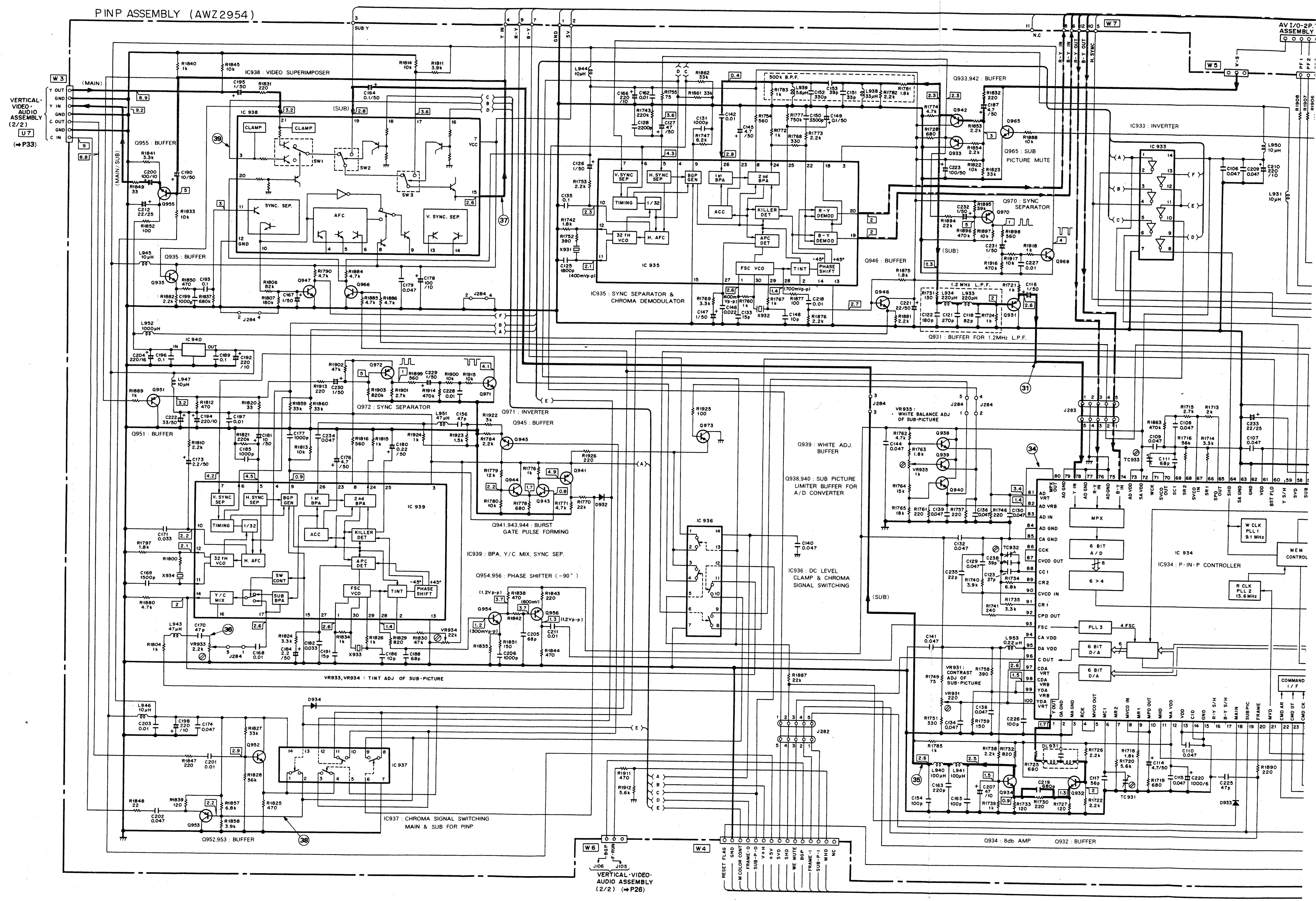
POWER SUPPLY · DEFLECTION ASSEMBLY

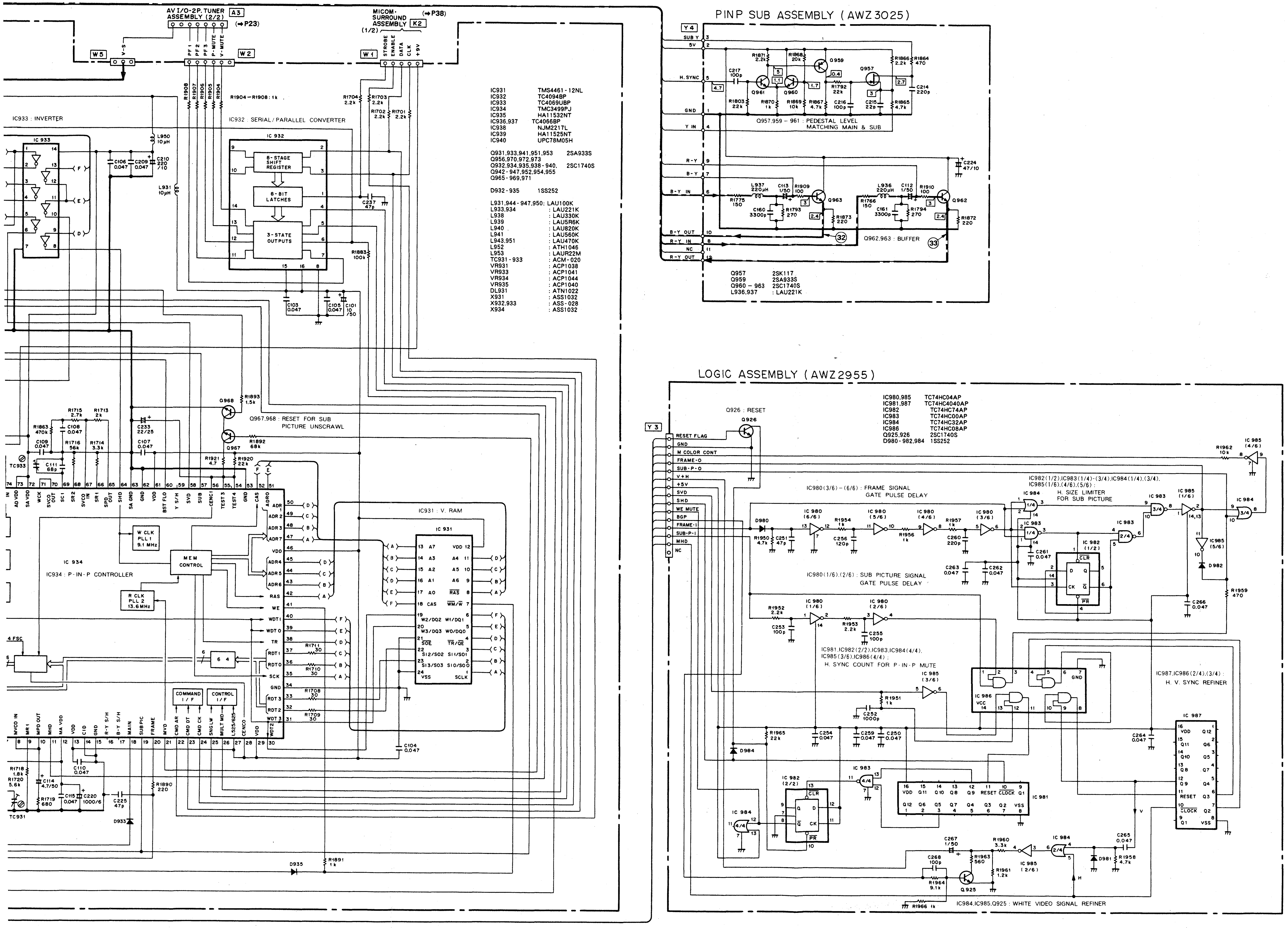
IC651,652	ON3161-Q
Q551,552	NON SUPPLY
Q561,571	2SC3332
Q562,572	2SD1276A
Q563,573	2SD1911
Q651-653,662,664	2SA933S
Q654-657,660,666	2SC1740S
Q658	2SC3451
Q659	2SB824
Q661	2SC2705
Q663,665	2SD1275
D551,552	NON SUPPLY
D553,561,563,571,658-660, D662-665,667-669,672, D674-676,678,	1SS252
D562	11E2
D572	11DF2FD
D573	NON SUPPLY
D574,575	ES1F
D651,652,654,655	1SS145
D653,656,687,689	HZS6B1L
D657	RB604
D670,671,673	11DF1FD
D677	HZS6C2L
D679	RL2Z
D680	RL4Z
D681	RG4A
D682 − 685	RL4Z
D686	HZS6A1L
D688	HZS18-1L
D690	RD39ESB4

RY651	: ASR-512	C717,718	: ACE1009
RY652	: ASR1027	C719	: ACH1147
L551	: LTA272J	C720,721	: ACE1009
L552	: ATL1053	C722	: ACH1148
L553	: ATL1058	C723	: ACG-040
L554	: ATL1057	C725	: ACH-378
L555	: ATX-028	C728	: ACH1132
L651	: ATF1031	C733	: ACG1008
L652	: ATH1009	C737	: ACG − 032
L653	: ATF-207	C741	: ACH1146
L654-665	: ATX-028		
L666	: ATH-133	VR591	: NON SUPPLY
L667,668	: ATX-028	VR593	: NON SUPPLY
T551,552	: ATK1045	R134	: ACN1074
T553	: NON SUPPLY	R168	: ACN-225
T651	: ATT1120	R170,171	: ACN1074
T652	: ATK1049	R252,279	: ACN-208
C606	: ACH-370	R269,275	: ACN1032
C615	: ACH-372	R282,287	: ACN1050
C616,638	: ACG1024	R305,306	: ACN1057
C619	: ACE1044		
C635	: ACH1117		
C701,702	: ACE-507		
C705,706	: ACG-001		
C710,711	: ACG-001		
C713	: ACG-040		


E2
+35V
+35V
GND
GND
VERTICAL · VIDEO · AUDIO ASSEMBLY (1/2)
U6 (→P25)
E3
+23V
V. GND
V. GND
- 23V
CONVERGENCE ASSEMBLY
G4 (→P41)
MICOM · SURROUND ASSEMBLY (1/2)
K1 (→P38)
R323 15k(1W)
C761 1/50
D690
CPU. RST
+39V
+30V
V. GND
GND
+13.5V
+13.5V
12V STB
12V STB
P. GND
P. D
A.C. CLK
RELAY
+9V
E1
VERTICAL · VIDEO · AUDIO ASSEMBLY (2/2)
U1 (→P26)
E4
L551 2.7mH
214.7
23.5
16.9
+220V
H.T. +
H.T. -
B. CRT DRIVE ASSEMBLY
P3 (→P28)
SUB DEFLECTION ASSEMBLY (AWZ2965)
IC591,592 NJM4558DXP
Q591,592 2SC2705
Q593 2SC1740S
D591,592,594 1SS252
D593 RD5.1ESB
139m
13.6
C667 10/25
C666 0.01
C665 0.047
C651 0.047
IC592(1/2) : PRIMARY ERROR AMP
IC592(2/2) : SECONDARY ERROR AMP
Q592 : HIGH VOLTAGE CORRECTION DRIVER
C664 100p/500
63
Q592
6.3
R727 470 (1/2W)
6.9
D592
R728 560
13.6
5.2
IC592 (1/2)
5.2
C663 1000p
5.2
R726 3.3k
R724
R723
C662 1000p
4.8
IC 592 (2/2)
5.2
R721 470
9.1
R722
28
GND
+13.5V
H.V.D
H.V.R
CPU. RST
V. REF
F. B
H.D.D
H.D.R
H. SIZE
H. SIZE
P. KEY
4.9V
R729 4.7k
5.2
5.2
979m
C653 1/50
X1
4
29
9.1
83.5
C654 4700p
R705 470
13.6
IC591 (1/2)
5.2
R731 470
5.2
5.2
R730 470
Q591
C655 100p /500
5.5
4.8
R707 470
4.2
D591
IC591 (2/2)
5.2
5.2
R710 470
R704 3.9k
C661 2200p
R708 1.8k
IC591(2/2) : ERROR AMP
C656 0.047
R703 2.2k
R702 820
5.8
9.1
Q593
R709 2.2k
5.2
D594
5.1
C652 1/50
R701 10k
R706 2.2k
D593
IC591(1/2) : BUFFER
Q591 : LINEAR DEFLECTION & SIZE. PIN CORRECTION DRIVER
Q593 : CORRECTION SIGNAL MIXER

7.6 PINP, PINP SUB AND LOGIC ASSEMBLIES


PINP ASSEMBLY (AWZ2954)
VERTICAL·VIDEO·AUDIO ASSEMBLY (2/2) U7 (➡P33)
W3
IC938 : VIDEO SUPERIMPOSER
CLAMP
SYNC. SEP.
AFC
V. SYNC. SEP.
SW1
SW2
SW3
Q955 : BUFFER
Q935 : BUFFER
Q947
Q966
IC940
Q951 : BUFFER
Q972 : SYNC SEPARATOR
Q971 : INVERTER
Q945 : BUFFER
Q941,943,944 : BURST GATE PULSE FORMING
IC939 : BPA, Y/C MIX, SYNC SEP.
IC 939
Q954,956 : PHASE SHIFTER (-90°)
VR933,VR934 : TINT ADJ OF SUB-PICTURE
IC937 : CHROMA SIGNAL SWITCHING MAIN & SUB FOR PINP
Q952,953 : BUFFER
IC935 : SYNC SEPARATOR & CHROMA DEMODULATOR
IC 935
500k B.P.F.
V. SYNC SEP
H. SYNC SEP
BGP GEN
1st BPA
2nd BPA
ACC
KILLER DET
APC DET
R-Y DEMOD
B-Y DEMOD
FSC VCO
TINT
PHASE SHIFT
32 fH VCO
H. AFC
TIMING
1/32
Y/C MIX
SUB BPA
SW CONT
Q933,942 : BUFFER
Q965 : SUB PICTURE MUTE
Q970 : SYNC SEPARATOR
Q946 : BUFFER
1.2 MHz L.P.F.
Q931 : BUFFER FOR 1.2MHz L.P.F.
IC933 : INVERTER
IC 933
IC936 : DC LEVEL CLAMP & CHROMA SIGNAL SWITCHING
IC 936
Q939 : WHITE ADJ. BUFFER
Q938,940 : SUB PICTURE LIMITER BUFFER FOR A/D CONVERTER
VR935 : WHITE BALANCE ADJ OF SUB-PICTURE
VR931 : CONTRAST ADJ OF SUB-PICTURE
Q973
IC 934
IC934 : P-IN-P CONTROLLER
MPX
6 BIT A/D
6 > 4
PLL 3
4 FSC
6 BIT D/A
W CLK PLL 1 9.1 MHz
R CLK PLL 2 13.6 MHz
MEM CONTROL
COMMAND I/F
Q934 : 8db AMP
Q932 : BUFFER
DL931
J282
J283
J284
W4
W5
W6
W7
AV I/O-2P, ASSEMBLY
VERTICAL·VIDEO·AUDIO ASSEMBLY (2/2) (➡P26)
RESET FLAG
GND
M COLOR CONT
FRAME-O
SUB-V+H
+5V
SVD
WE MUTE
BGP
FRAME-1
SUB-F-1
MHD
NC



7
8
9
10
11
12
A
B
C
D
AV I/O-2P. TUNER ASSEMBLY (2/2) A3 (→P23)
MICOM-SURROUND ASSEMBLY (1/2) K2 (→P38)
W5
W2
W1
V-S
PF 1
PF 2
PF 3
P-MUTE
V-MUTE
STROBE
ENABLE
DATA
CLK
+9V
R1904—R1908 : 1k
IC933 : INVERTER
IC932 : SERIAL/PARALLEL CONVERTER
8-STAGE SHIFT REGISTER
8-BIT LATCHES
3-STATE OUTPUTS
Q967,968 : RESET FOR SUB PICTURE UNSCRAWL
IC931 : V. RAM
IC934 : P-IN-P CONTROLLER
W CLK PLL 1 9.1 MHz
R CLK PLL 2 13.6MHz
MEM CONTROL
COMMAND I/F
CONTROL I/F
4 FSC
PINP SUB ASSEMBLY (AWZ3025)
Y4
SUB Y
5V
H. SYNC
GND
Y IN
R-Y
B-Y
B-Y IN
B-Y OUT
R-Y IN
NC
R-Y OUT
Q957,959 - 961 : PEDESTAL LEVEL MATCHING MAIN & SUB
Q962,963 : BUFFER
32
33
LOGIC ASSEMBLY (AWZ2955)
Y3
RESET FLAG
GND
M COLOR CONT
FRAME-O
SUB-P-O
V+H
+5V
SVD
SHD
WE MUTE
BGP
FRAME-I
SUB-P-I
MHD
NC
Q926 : RESET
IC980(3/6)-(6/6) : FRAME SIGNAL GATE PULSE DELAY
IC980(1/6),(2/6) : SUB PICTURE SIGNAL GATE PULSE DELAY
IC982(1/2),IC983(1/4)-(3/4),IC984(1/4),(3/4), IC985(1/6),(4/6),(5/6) : H. SIZE LIMITER FOR SUB PICTURE
IC981,IC982(2/2),IC983,IC984(4/4), IC985(3/6),IC986(4/4) : H. SYNC COUNT FOR P-IN-P MUTE
IC987,IC986(2/4),(3/4) : H. V. SYNC REFINER
IC984,IC985,Q925 : WHITE VIDEO SIGNAL REFINER

IC931	TMS4461-12NL
IC932	TC4094BP
IC933	TC4069UBP
IC934	TMC3499PJ
IC935	HA11532NT
IC936,937	TC4066BP
IC938	NJM2217L
IC939	HA11525NT
IC940	UPC78M05H
Q931,933,941,951,953 Q956,970,972,973	2SA933S
Q932,934,935,938-940, Q942-947,952,954,955 Q965-969,971	2SC1740S
D932-935	1SS252

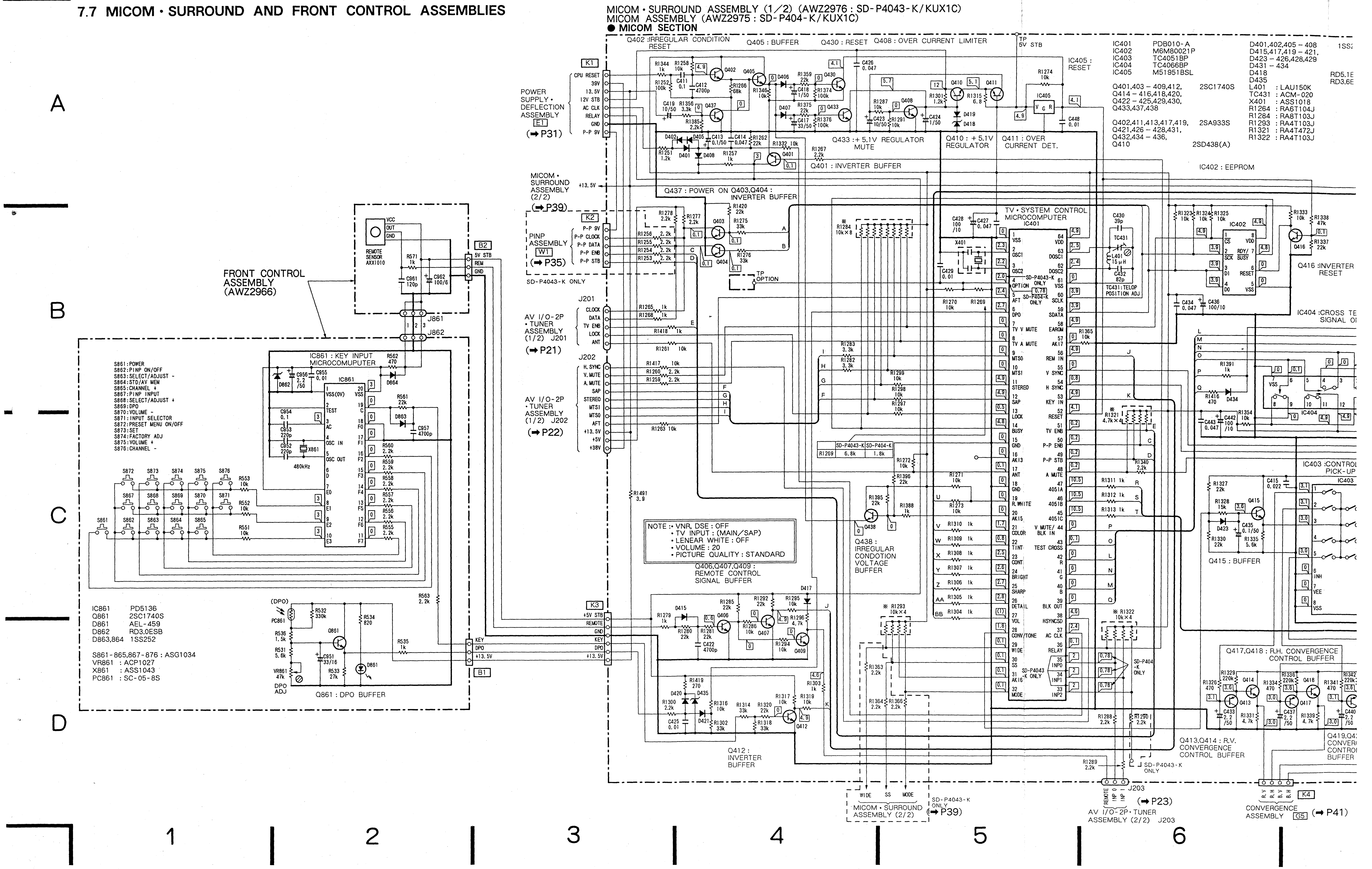
L931,944-947,950: LAU100K
L933,934 : LAU221K
L938 : LAU330K
L939 : LAU5R6K
L940 : LAU820K
L941 : LAU560K
L943,951 : LAU470K
L952 : ATH1046
L953 : LAUR22M
TC931-933 : ACM-020
VR931 : ACP1038
VR933 : ACP1041
VR934 : ACP1044
VR935 : ACP1040
DL931 : ATN1022
X931 : ASS1032
X932,933 : ASS-028
X934 : ASS1032

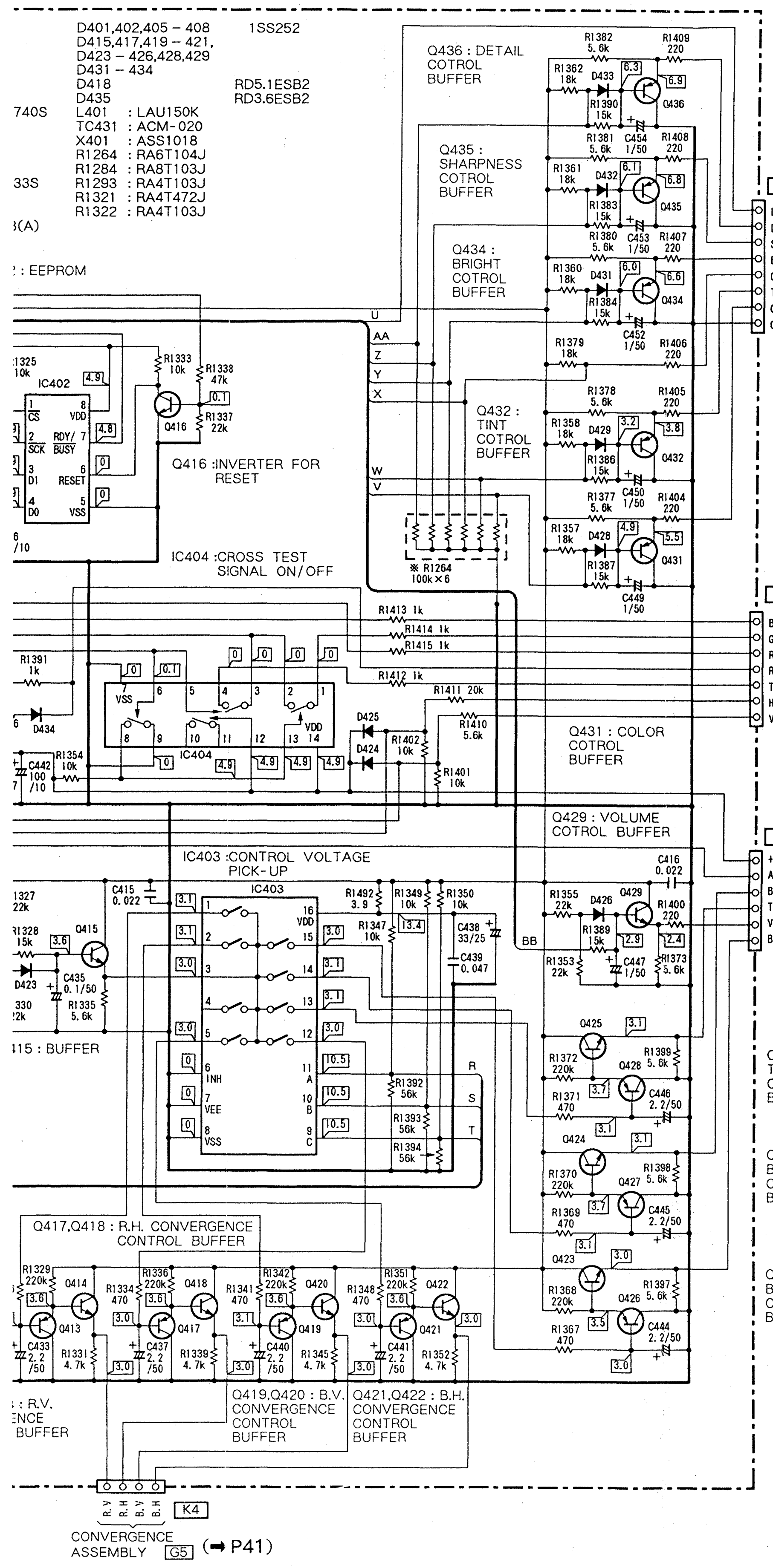
Q957	2SK117
Q959	2SA933S
Q960-963	2SC1740S

L936,937 : LAU221K

IC980,985	TC74HC04AP
IC981,987	TC74HC4040AP
IC982	TC74HC74AP
IC983	TC74HC00AP
IC984	TC74HC32AP
IC986	TC74HC08AP
Q925,926	2SC1740S
D980-982,984	1SS252

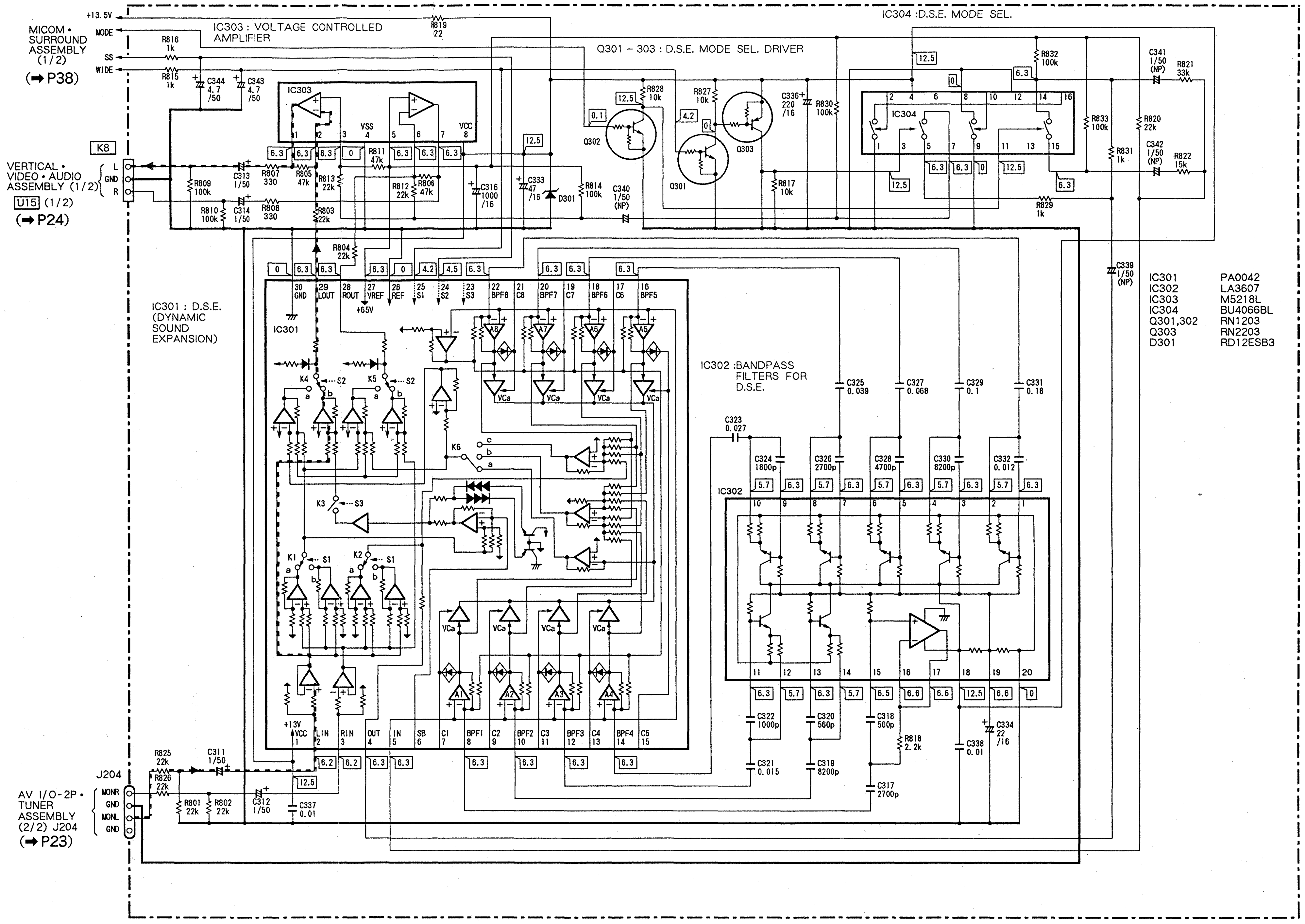
7.7 MICOM • SURROUND AND FRONT CONTROL ASSEMBLIES


MICOM • SURROUND ASSEMBLY (1/2) (AWZ2976 : SD-P4043-K/KUX1C)
MICOM ASSEMBLY (AWZ2975 : SD-P404-K/KUX1C)
● MICOM SECTION
Q402 : IRREGULAR CONDITION RESET
Q405 : BUFFER
Q430 : RESET
Q408 : OVER CURRENT LIMITER
TP 5V STB
IC405 : RESET
Q433 : +5.1V REGULATOR MUTE
Q410 : +5.1V REGULATOR
Q411 : OVER CURRENT DET.
Q401 : INVERTER BUFFER
Q437 : POWER ON
Q403,Q404 : INVERTER BUFFER
IC401 PDB010-A
IC402 M6M80021P
IC403 TC4051BP
IC404 TC4066BP
IC405 M51951BSL
Q401,403 – 409,412, Q414 – 416,418,420, Q422 – 425,429,430, Q433,437,438 2SC1740S
Q402,411,413,417,419, Q421,426 – 428,431, Q432,434 – 436, 2SA933S
Q410 2SD438(A)
D401,402,405 – 408 D415,417,419 – 421, D423 – 426,428,429 D431 – 434 1SS2
D418 RD5.1E
D435 RD3.6E
L401 : LAU150K
TC431 : ACM-020
X401 : ASS1018
R1264 : RA6T104J
R1284 : RA8T103J
R1293 : RA4T103J
R1321 : RA4T472J
R1322 : RA4T103J
IC402 : EEPROM
POWER SUPPLY • DEFLECTION ASSEMBLY E1 (➡P31)
K1
CPU RESET
39V
13.5V
12V STB
AC CLK
RELAY
GND
P-P 9V
MICOM • SURROUND ASSEMBLY (2/2) (➡P39)
PINP ASSEMBLY W1 (➡P35)
K2
SD-P4043-K ONLY
AV I/O-2P • TUNER ASSEMBLY (1/2) J201 (➡P21)
AV I/O-2P • TUNER ASSEMBLY (1/2) J202 (➡P22)
TV • SYSTEM CONTROL MICROCOMPUTER IC401
TC431 : TELOP POSITION ADJ
Q416 : INVERTER RESET
IC404 : CROSS TE SIGNAL O
IC403 : CONTROL PICK-UP
Q415 : BUFFER
NOTE : • VNR, DSE : OFF
• TV INPUT : (MAIN/SAP)
• LENEAR WHITE : OFF
• VOLUME : 20
• PICTURE QUALITY : STANDARD
Q406,Q407,Q409 : REMOTE CONTROL SIGNAL BUFFER
Q438 : IRREGULAR CONDOTION VOLTAGE BUFFER
Q412 : INVERTER BUFFER
Q417,Q418 : R.H. CONVERGENCE CONTROL BUFFER
Q413,Q414 : R.V. CONVERGENCE CONTROL BUFFER
Q419,Q4 CONVER CONTRO BUFFER
SD-P4043-K | SD-P404-K
R1269 | 6.8k | 1.8k
MICOM • SURROUND ASSEMBLY (2/2) SD-P4043-K ONLY (➡P39)
AV I/O-2P • TUNER ASSEMBLY (2/2) J203 (➡P23)
CONVERGENCE ASSEMBLY G5 (➡P41)
K3
K4
FRONT CONTROL ASSEMBLY (AWZ2966)
REMOTE SENSOR AXX1010
B1
B2
J861
J862
IC861 : KEY INPUT MICROCOMUPUTER
S861:POWER
S862:PINP ON/OFF
S863:SELECT/ADJUST -
S864:STD/AV MEM
S865:CHANNEL +
S867:PINP INPUT
S868:SELECT/ADJUST +
S869:DPO
S870:VOLUME -
S871:INPUT SELECTOR
S872:PRESET MENU ON/OFF
S873:SET
S874:FACTORY ADJ
S875:VOLUME +
S876:CHANNEL -
IC861 PD5136
Q861 2SC1740S
D861 AEL-459
D862 RD3.0ESB
D863,864 1SS252
S861-865,867-876 : ASG1034
VR861 : ACP1027
X861 : ASS1043
PC861 : SC-05-8S
Q861 : DPO BUFFER
DPO ADJ
1
2
3
4
5
6
A
B
C
D

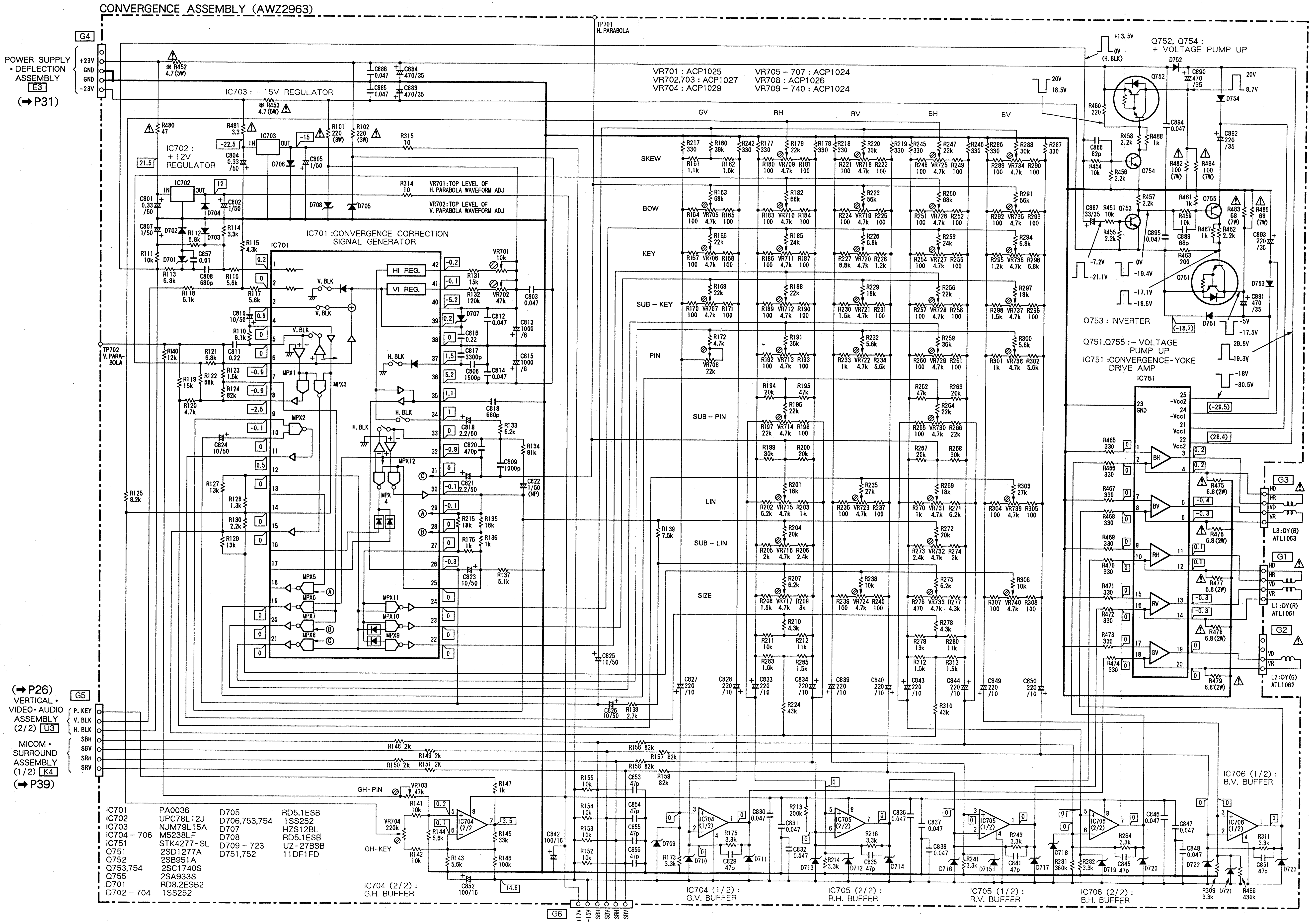

D401,402,405 – 408 1SS252
D415,417,419 – 421, D423 – 426,428,429 D431 – 434
D418 RD5.1ESB2
D435 RD3.6ESB2
L401 : LAU150K
TC431 : ACM-020
X401 : ASS1018
R1264 : RA6T104J
R1284 : RA8T103J
R1293 : RA4T103J
R1321 : RA4T472J
R1322 : RA4T103J
EEPROM
Q436 : DETAIL COTROL BUFFER
Q435 : SHARPNESS COTROL BUFFER
Q434 : BRIGHT COTROL BUFFER
Q432 : TINT COTROL BUFFER
Q431 : COLOR COTROL BUFFER
Q429 : VOLUME COTROL BUFFER
Q416 :INVERTER FOR RESET
IC404 :CROSS TEST SIGNAL ON/OFF
IC403 :CONTROL VOLTAGE PICK-UP
Q415 : BUFFER
K7
LINEAR WHITE
DETAIL
SHARP
BRIGHT
CONTRAST
TINT
COLOR
GND
VERTICAL • VIDEO • AUDIO ASSEMBLY (2/2) U14 (➡P26)
K6
VERTICAL • VIDEO • AUDIO ASSEMBLY (2/2) U13 (➡P26)
K5
+5V STB
A MUTE
BASS
TREBLE
VOLUME
BAL
VERTICAL • VIDEO • AUDIO ASSEMBLY (1/2) U12 (➡P24)
Q425,Q428 : TREBLE COTROL BUFFER
Q424,Q427 : BASS COTROL BUFFER
Q423,Q426 : BALANCE COTROL BUFFER
Q417,Q418 : R.H. CONVERGENCE CONTROL BUFFER
Q419,Q420 : B.V. CONVERGENCE CONTROL BUFFER
Q421,Q422 : B.H. CONVERGENCE CONTROL BUFFER
R.V. BUFFER
K4
CONVERGENCE ASSEMBLY G5 (➡P41)
※ R1264 100k×6

MICOM • SURROUND ASSEMBLY (2/2) (AWZ2976) (SD-P4043-K/KUX1C TYPE ONLY)

● SURROUND SECTION


MICOM • SURROUND ASSEMBLY (1/2) (➡P38)
+13.5V
MODE
SS
WIDE
IC303 : VOLTAGE CONTROLLED AMPLIFIER
Q301 – 303 : D.S.E. MODE SEL. DRIVER
IC304 :D.S.E. MODE SEL.
K8
VERTICAL • VIDEO • AUDIO ASSEMBLY (1/2) U15 (1/2) (➡P24)
IC301 : D.S.E. (DYNAMIC SOUND EXPANSION)
IC302 :BANDPASS FILTERS FOR D.S.E.
J204
AV I/O-2P • TUNER ASSEMBLY (2/2) J204 (➡P23)
MONR
GND
MONL
GND
IC301 PA0042
IC302 LA3607
IC303 M5218L
IC304 BU4066BL
Q301,302 RN1203
Q303 RN2203
D301 RD12ESB3

7.8 CONVERGENCE ASSEMBLY


CONVERGENCE ASSEMBLY (AWZ2963)
G4
POWER SUPPLY • DEFLECTION ASSEMBLY E3
(➡P31)
+23V
GND
GND
-23V
IC703 : -15V REGULATOR
IC702 : +12V REGULATOR
IC701 :CONVERGENCE CORRECTION SIGNAL GENERATOR
TP701 H. PARABOLA
TP702 V. PARABOLA
VR701 : ACP1025
VR702,703 : ACP1027
VR704 : ACP1029
VR705 - 707 : ACP1024
VR708 : ACP1026
VR709 - 740 : ACP1024
VR701:TOP LEVEL OF H. PARABOLA WAVEFORM ADJ
VR702:TOP LEVEL OF V. PARABOLA WAVEFORM ADJ
HI REG.
VI REG.
V. BLK
H. BLK
GV
RH
RV
BH
BV
SKEW
BOW
KEY
SUB - KEY
PIN
SUB - PIN
LIN
SUB - LIN
SIZE
Q752, Q754 : + VOLTAGE PUMP UP
Q753 : INVERTER
Q751,Q755 :- VOLTAGE PUMP UP
IC751 :CONVERGENCE-YOKE DRIVE AMP
G3
L3:DY(B) ATL1063
G1
L1:DY(R) ATL1061
G2
L2:DY(G) ATL1062
(➡P26)
VERTICAL • VIDEO• AUDIO ASSEMBLY (2/2) U3
G5
P. KEY
V. BLK
H. BLK
SBH
SBV
SRH
SRV
MICOM • SURROUND ASSEMBLY (1/2) K4
(➡P39)
GH-PIN
GH-KEY
IC704 (2/2) : G.H. BUFFER
IC704 (1/2) : G.V. BUFFER
IC705 (2/2) : R.H. BUFFER
IC705 (1/2) : R.V. BUFFER
IC706 (2/2) : B.H. BUFFER
IC706 (1/2) : B.V. BUFFER
G6
+12V
-15V
SBH
SBV
SRH
SRV
IC701 PA0036
IC702 UPC78L12J
IC703 NJM79L15A
IC704 - 706 M5238LF
IC751 STK4277-SL
Q751 2SD1277A
Q752 2SB951A
Q753,754 2SC1740S
Q755 2SA933S
D701 RD8.2ESB2
D702 - 704 1SS252
D705 RD5.1ESB
D706,753,754 1SS252
D707 HZS12BL
D708 RD5.1ESB
D709 - 723 UZ-27BSB
D751,752 11DF1FD

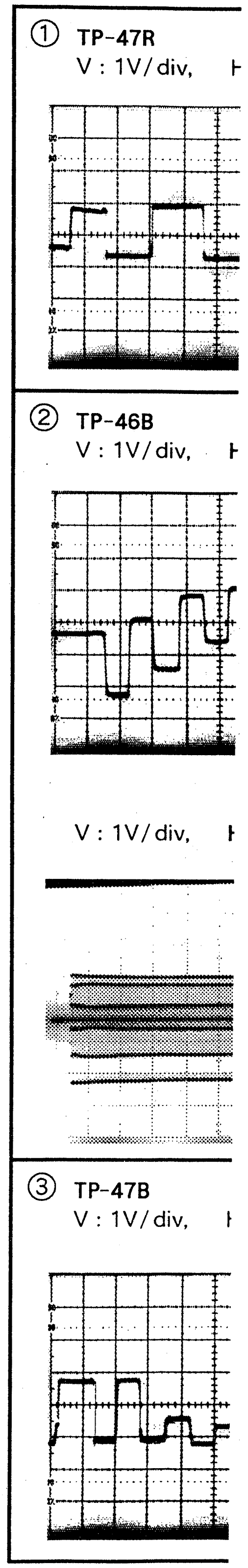
The waveforms

Input signal ;

①-㊴ : color b

Picture quality :

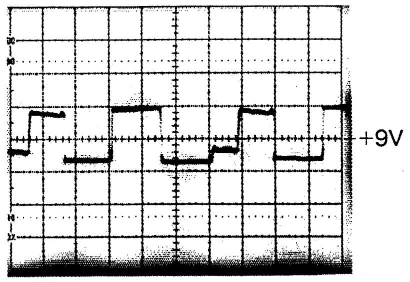
Range : DC rang



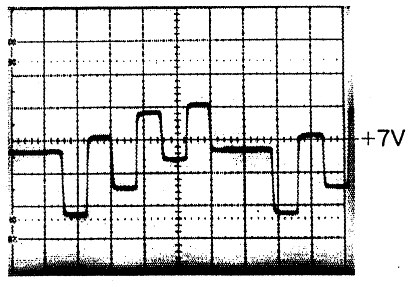
The waveforms at each position

Input signal ;
①-㊴ : color bar VDP input
Picture quality : standard
Range : DC rangs (without notice)

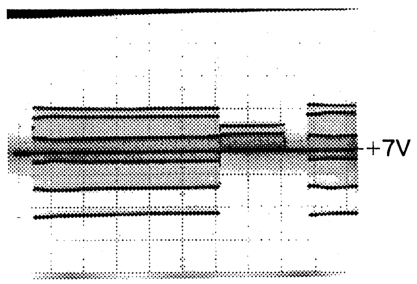
① **TP-47R**
V : 1V/div, H : 10μsec/div



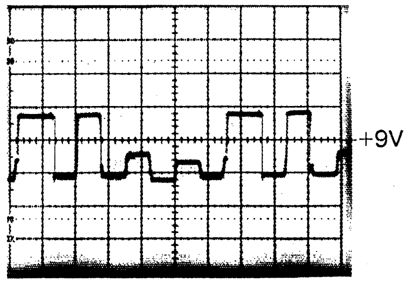
② **TP-46B**
V : 1V/div, **H : 10μsec/div**



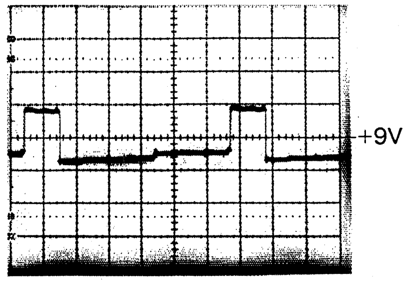
V : 1V/div, **H : 2μsec/div**



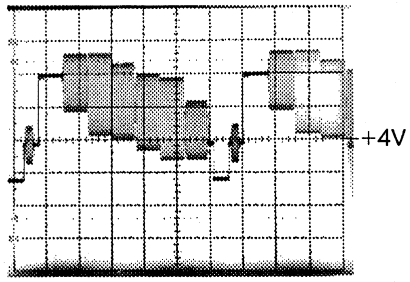
③ **TP-47B**
V : 1V/div, H : 10μsec/div



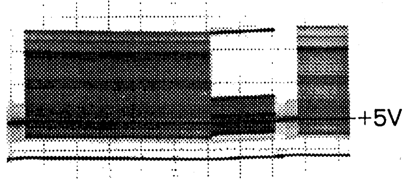
④ **TP-47G**
V : 1V/div, H : 10μsec/div



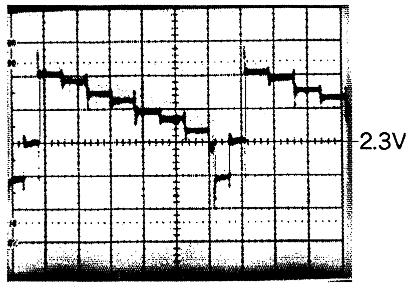
⑤ **TP-12**
V : 500mV/div, **H : 10μsec/div**



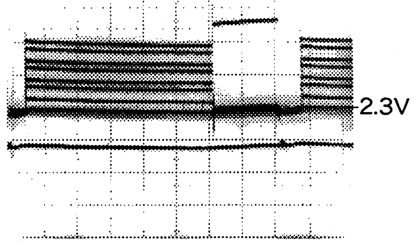
V : 500mV/div, **H : 2mV/div**



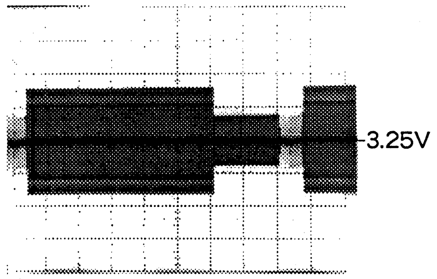
⑥ **TP-05**
V : 100mV/div, **H : 10μsec/div**



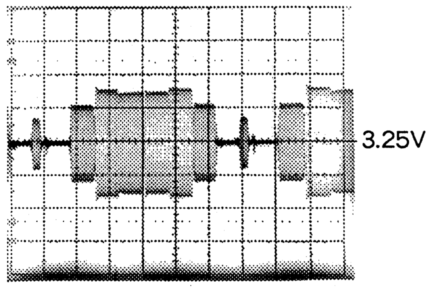
⑥ **TP-05**
V : 100mV/div, **H : 2msec/div**



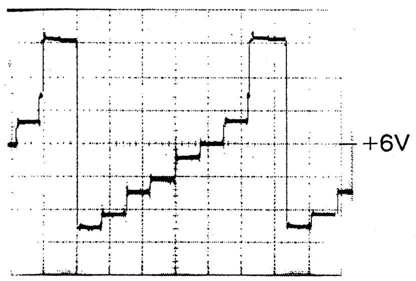
⑦ **TP-41**
V : 100mV/div, **H : 2msec/div**



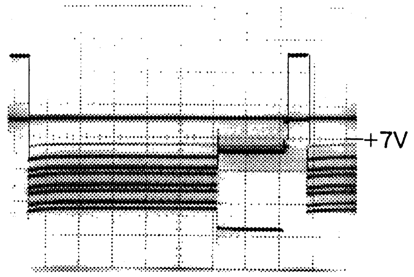
V : 100mV/div, **H : 10μsec/div**



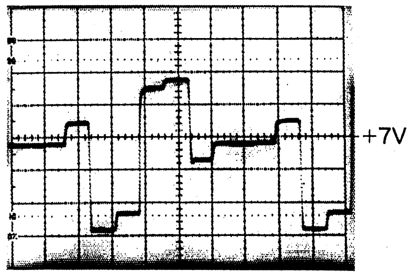
⑧ **TP-13**
V : 500mV/div, H : 10μsec/div



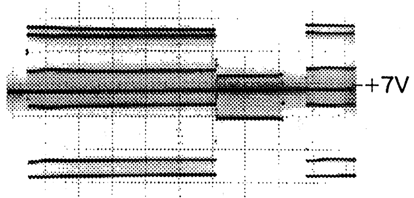
⑧ **TP-13**
V : 1V/div, H : 2msec/div



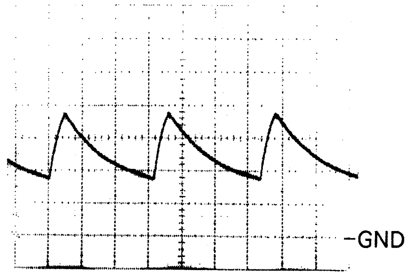
⑨ **TP-46R**
V : 1V/div, **H : 10μsec/div**



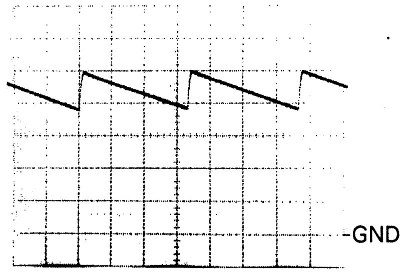
V : 1V/div, **H : 2msec/div**



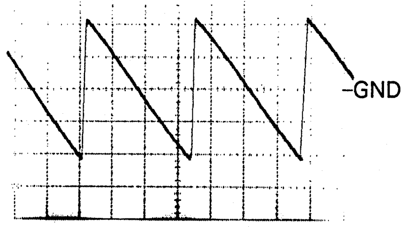
⑩ **IC105 Pin 15 for H. GND**
V : 1V/div, H : 20μsec/div



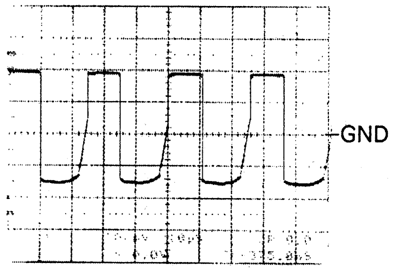
⑪ **C170 ⊕ side for V. GND**
V : 1V/div, H : 5msec/div



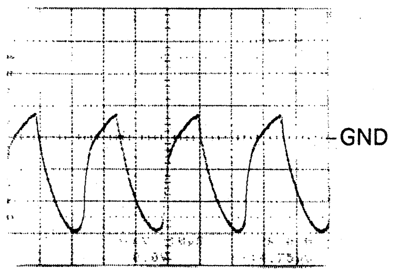
⑫ **R334 lead of C208 side for V. GND**
V : 0.5V/div, H : 5msec/div



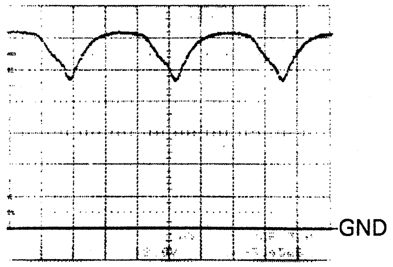
⑬ **D676 Cathode**
V : 5V/div, H : 10μsec/div



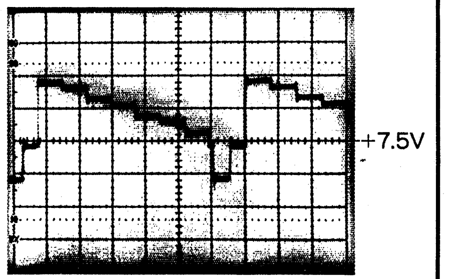
⑭ **C731 (both sides)**
V : 2V/div, H : 10μsec/div



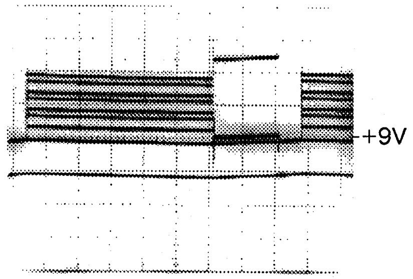
⑮ **Q661 Collector for V.GND**
V : 20V/div, H : 5msec/div



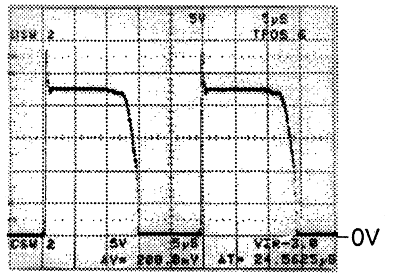
⑯ **TP-01**
V : 500mV/div, **H : 10μsec/div**



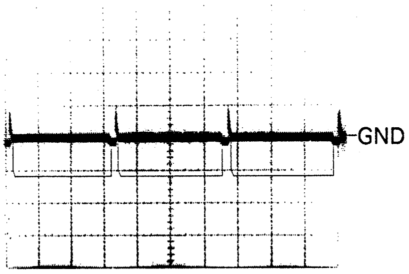
V : 500mV/div, **H : 2msec/div**



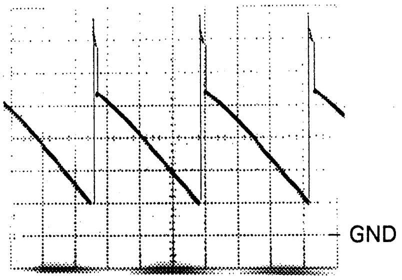
⑰ **Q658 Collector for emitter**
V : 50V/div, H : 5μsec/div
(Use the 10 : 1 probe)



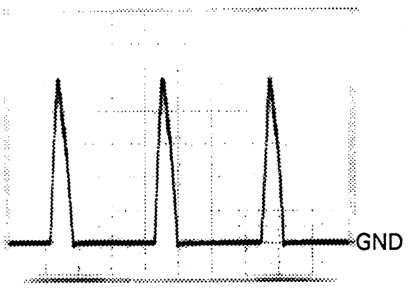
⑱ IC105 Pin 13 (AFC) for H. GND
V : 50mV/div, H : 5msec/div
AC range



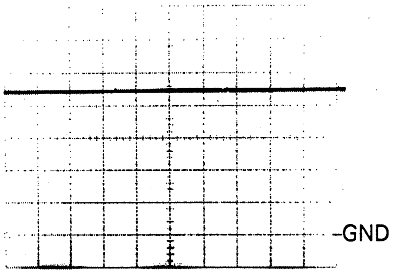
㉑ TP-609 (V. OUT)
for TP-605 (V.GND)
V : 5V/div, H : 5msec/div



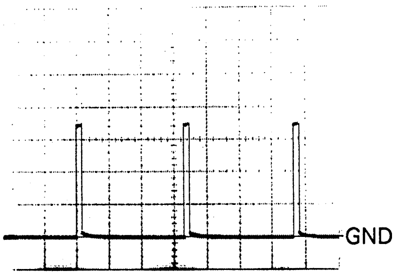
㉕ Q573 Collector
for TP-554 (GND)
V : 200V/div, H : 20μsec/div



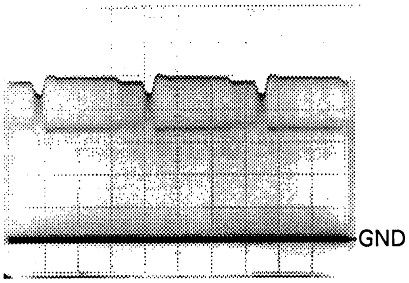
IC105 Pin 13 (AFC) for H. GND
V : 1V/div, H : 5msec/div



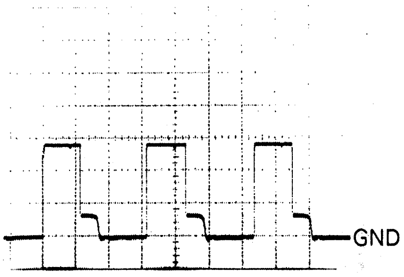
㉒ V. BLK for V. GND
V : 2V/div, H : 5msec/div



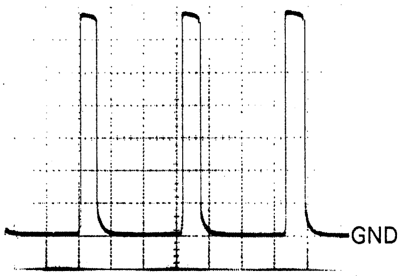
V : 200V/div, H : 5msec/div



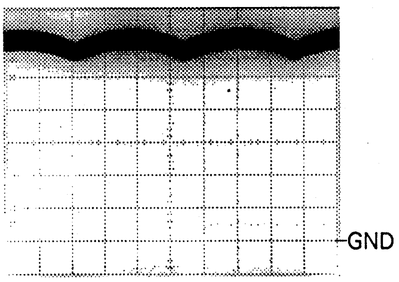
⑲ DRIVE for H. GND
V : 1V/div, H : 20μsec/div



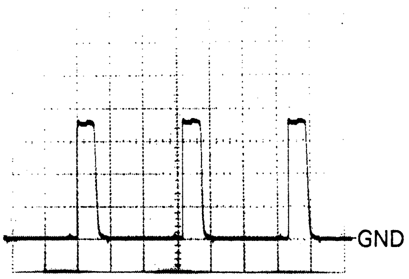
㉓ H. BLK for H. GND
V : 2V/div, H : 20μsec/div



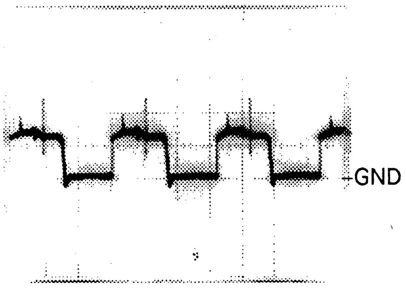
㉖ D562 Cathode
for TP-554 (H. GND)
V : 20V/div, H : 5msec/div



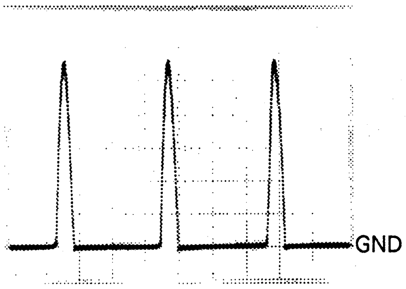
⑳ IC105 Pin 19 for H. GND
V : 0.5V/div, H : 20μsec/div



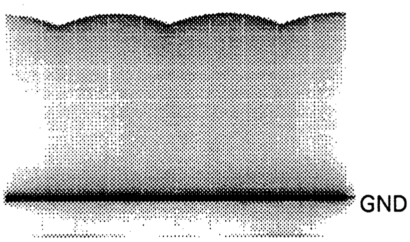
㉔ Q571 Base for TP-554 (GND)
V : 0.2V/div, H : 20μsec/div



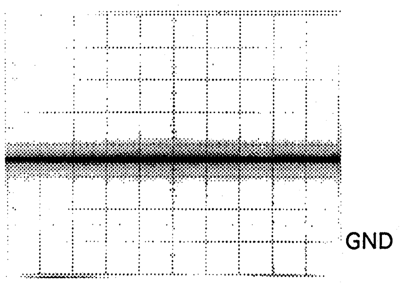
㉗ Q563 Collector
for emitter (H. GND)
V : 200V/div, H : 20μsec/div



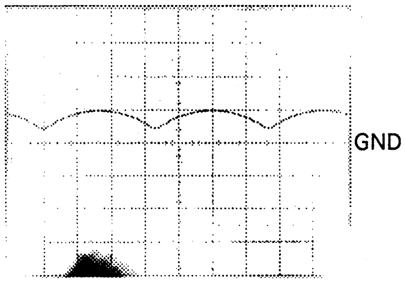
㉗ **Q563 Collector for emitter (H. GND)**
V : 200V/div, H : 5msec/div



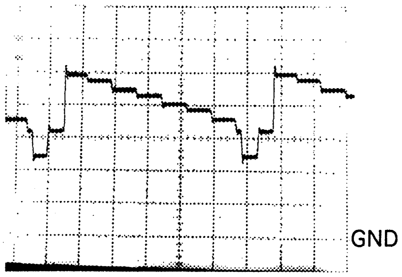
㉘ **IC591 Pin 1**
V : 2V/div, H : 5msec/div



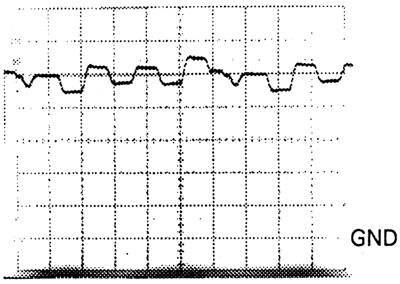
㉙ **X1 Pin 1 (Pin key)**
V : 5V/div, H : 5msec/div



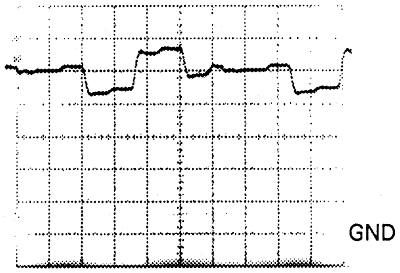
㉛ **C116 ⊖ side (Y signal)**
500mV/div, 10μsec/div



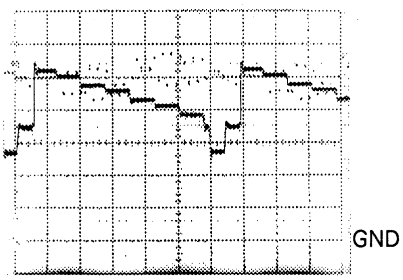
㉜ **Q963 Emitter (B−Y signal)**
500mV/div, 10μsec/div



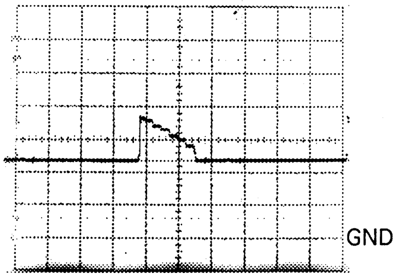
㉝ **Q962 Emitter (R−Y signal)**
500mV/div, 10μsec/div



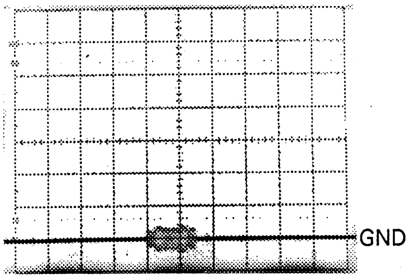
㉞ **IC934 Pin 80 (Y, B-Y, R-Y signal)**
500mV/div, 10μsec/div



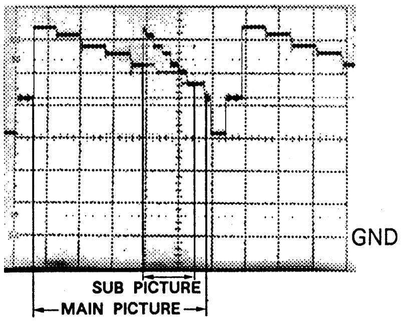
㉟ **R1785 and L940 side (Y signal of SUB picture)**
1V/div, 10μsec/div



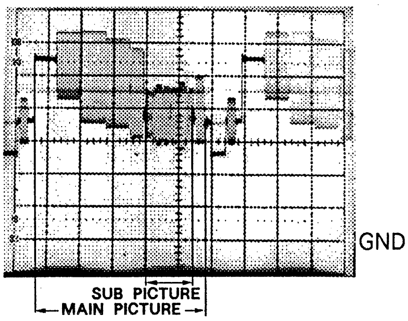
㊱ **VR933 side of C170 lead (CHROMA signal of SUB picture)**
500mV/div, 10μsec/div



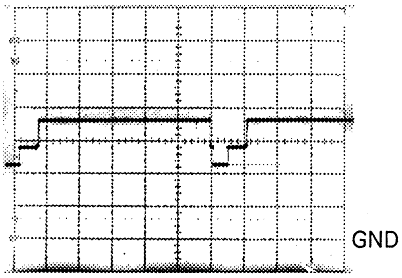
㊲ **IC938 Pin 15 (P IN P Y signal)**
500mV/div, 10μsec/div

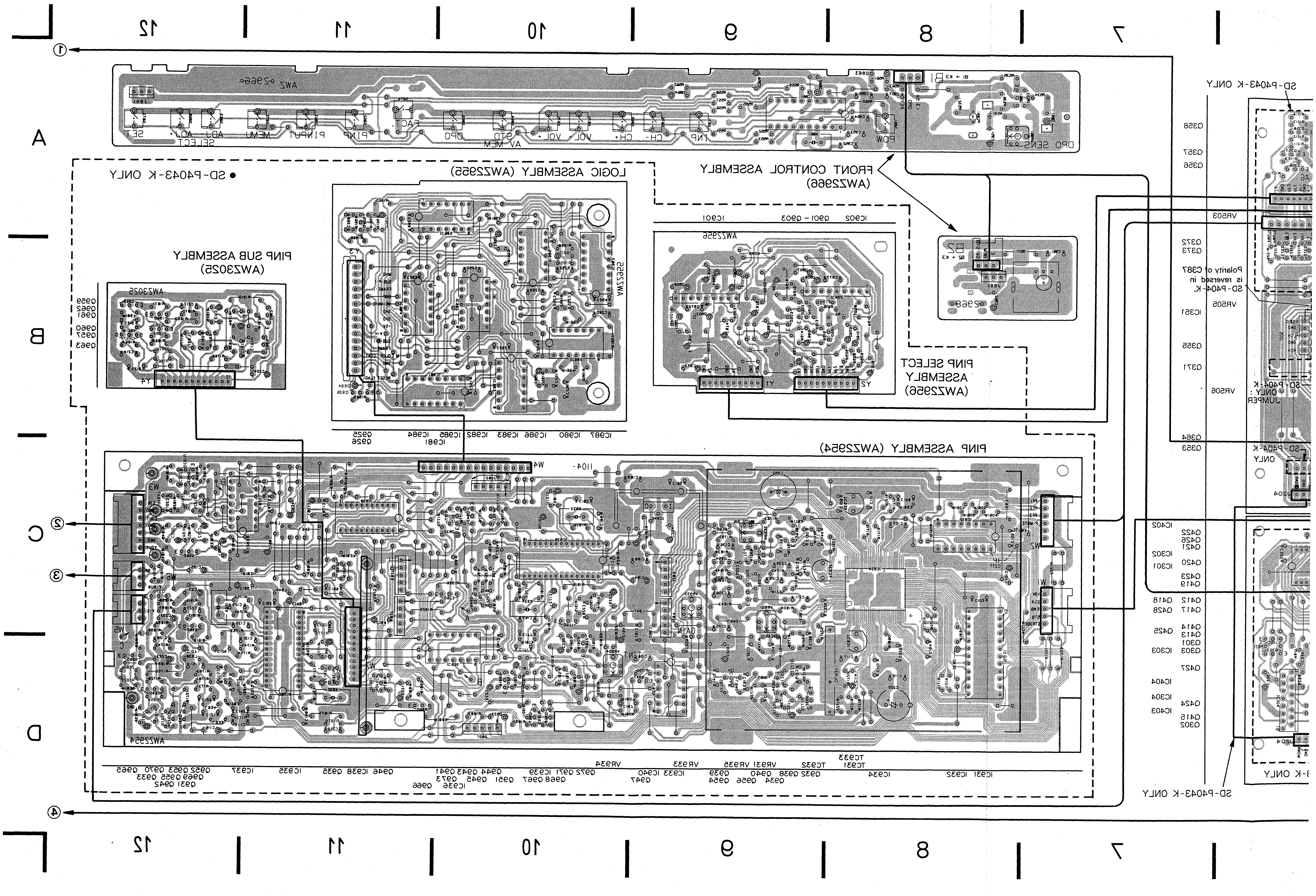


㊳ **Q953 Base (P IN P CHROMA signal)**
500mV/div, 10μsec/div



㊴ **IC938 Pin 3 (White signal in P IN P for MAIN picture)**
1V/div, 10μsec/div

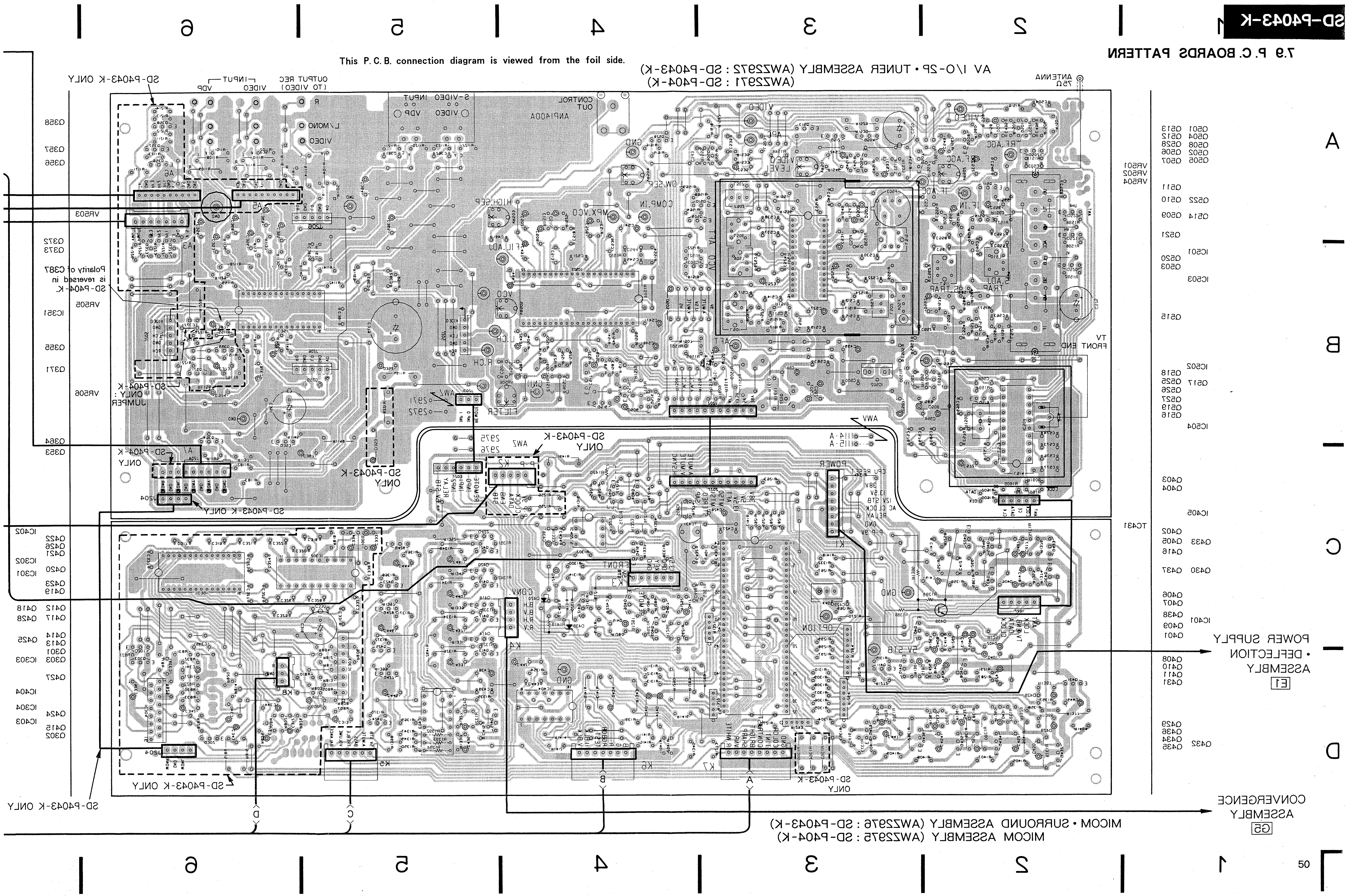



12
11
10
9
8
7
A
B
C
D
①
②
③
④
FRONT CONTROL ASSEMBLY (AWZ2966)
LOGIC ASSEMBLY (AWZ2955)
● SD-P4043-K ONLY
PINP SUB ASSEMBLY (AWZ3025)
PINP SELECT ASSEMBLY (AWZ2956)
PINP ASSEMBLY (AWZ2954)
SD-P4043-K ONLY
Polarity of C387 is reversed in SD-P404-K.
SD-P404-K ONLY : JUMPER
SD-P404-K ONLY
SET
ADJ+
ADJ-
SELECT
MEMU
PINPUT
PINP
FACT
DPO
STD
AV MEM
VOL+
VOL-
CH+
CH-
INP
POW
DPO SENS
IC901
IC902
Q901 - Q903
VR503
VR506
Q358
Q357
Q356
Q372
Q373
IC351
Q355
Q371
Q364
Q353
IC402
IC302
IC301
IC303
IC404
IC304
IC403
Q302

7.9 P.C. BOARDS PATTERN

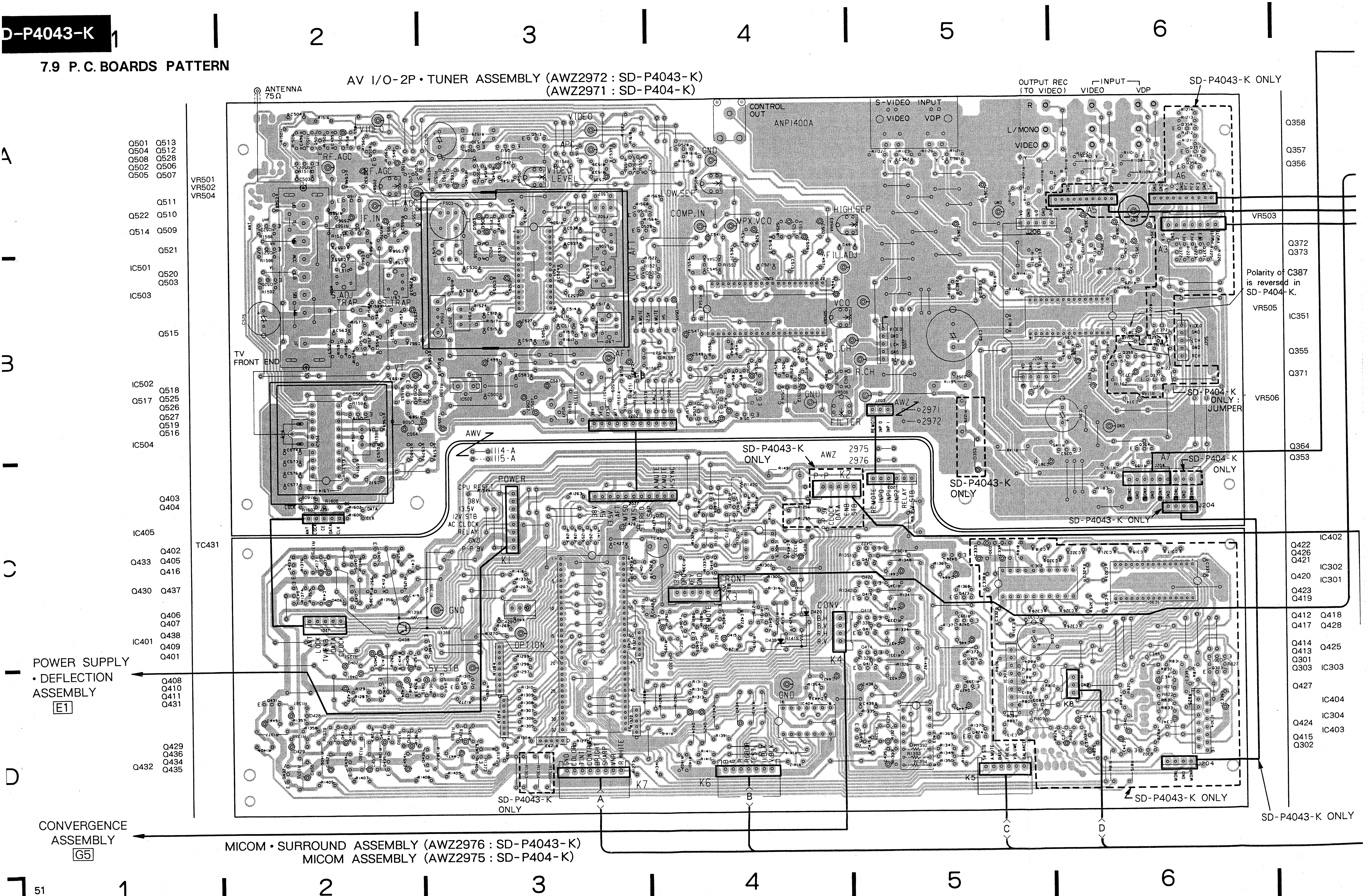
This P.C.B. connection diagram is viewed from the foil side.

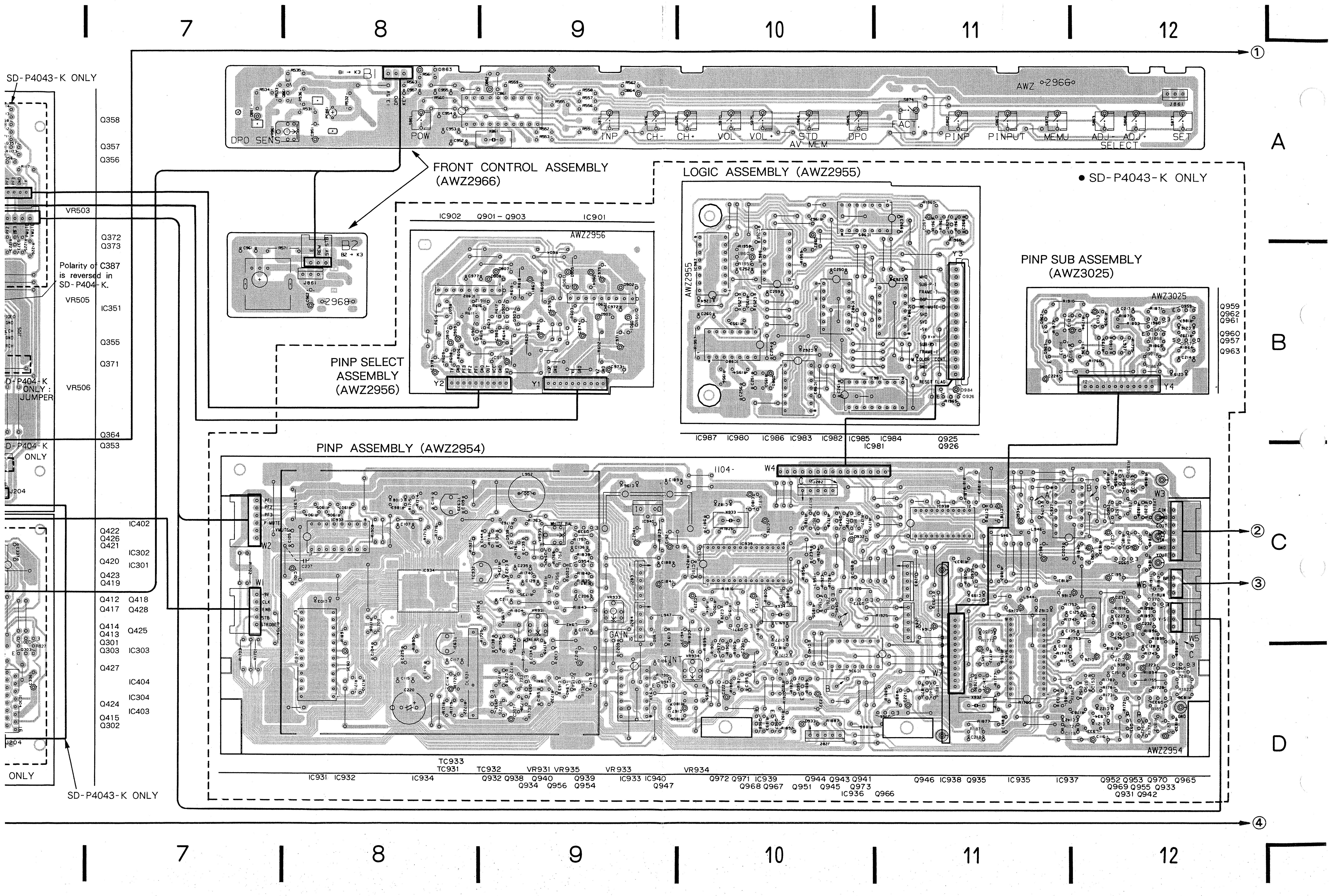
AV I/O-2P • TUNER ASSEMBLY (AWZ2972 : SD-P4043-K)
(AWZ2971 : SD-P404-K)

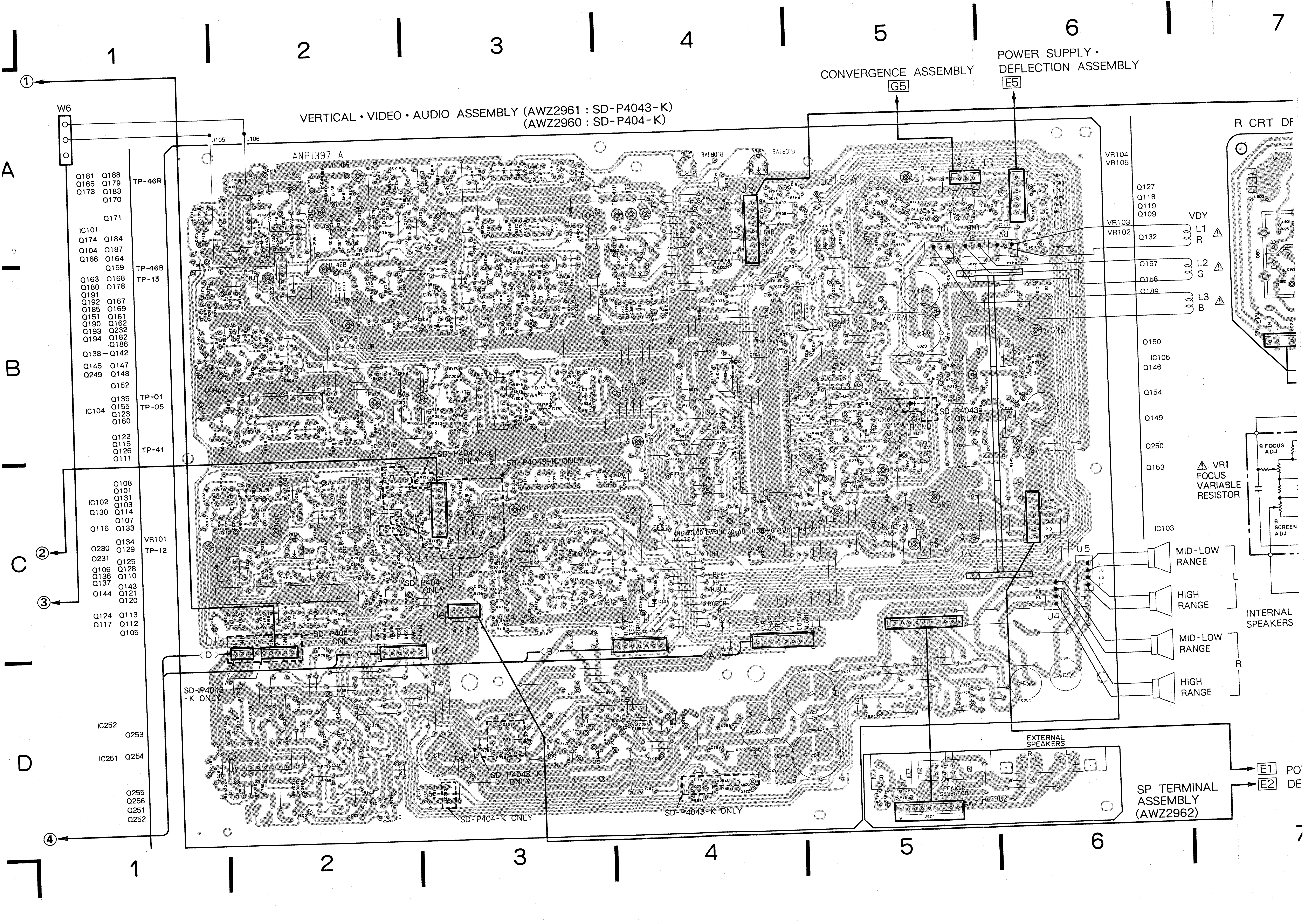

6
5
4
3
2
1
A
B
C
D
SD-P4043-K ONLY
OUTPUT REC (TO VIDEO)
INPUT
VIDEO
VDP
S-VIDEO INPUT
CONTROL OUT
ANTENNA 75Ω
TV FRONT END
Polarity of C387 is reversed in SD-P404-K.
SD-P404-K ONLY : JUMPER
SD-P404-K ONLY
AWZ
AWV
POWER
CPU RESET
FRONT
CONV
OPTION
GND
POWER SUPPLY • DEFLECTION ASSEMBLY
E1
CONVERGENCE ASSEMBLY
G5

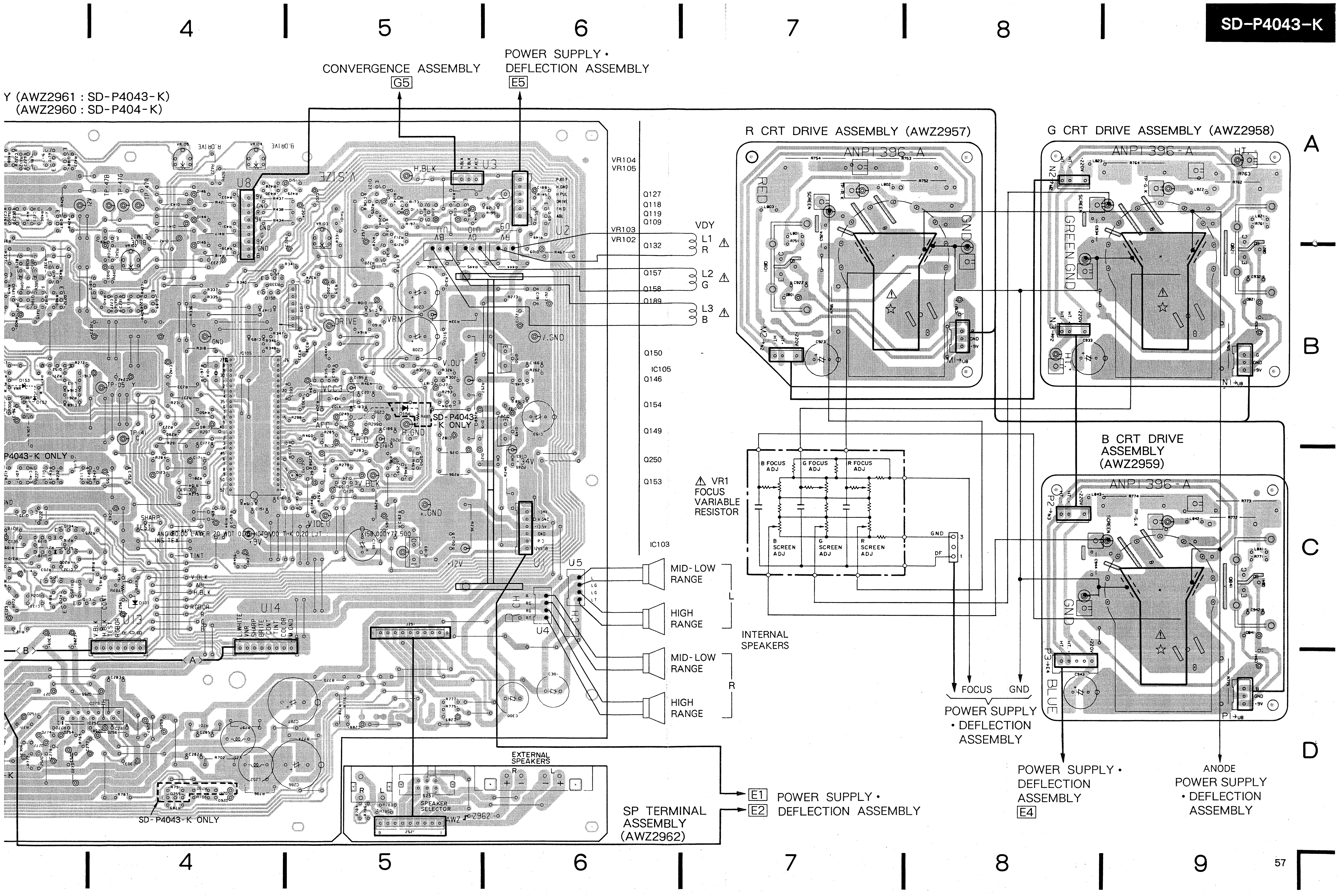
MICOM • SURROUND ASSEMBLY (AWZ2976 : SD-P4043-K)
MICOM ASSEMBLY (AWZ2975 : SD-P404-K)

7.9 P. C. BOARDS PATTERN

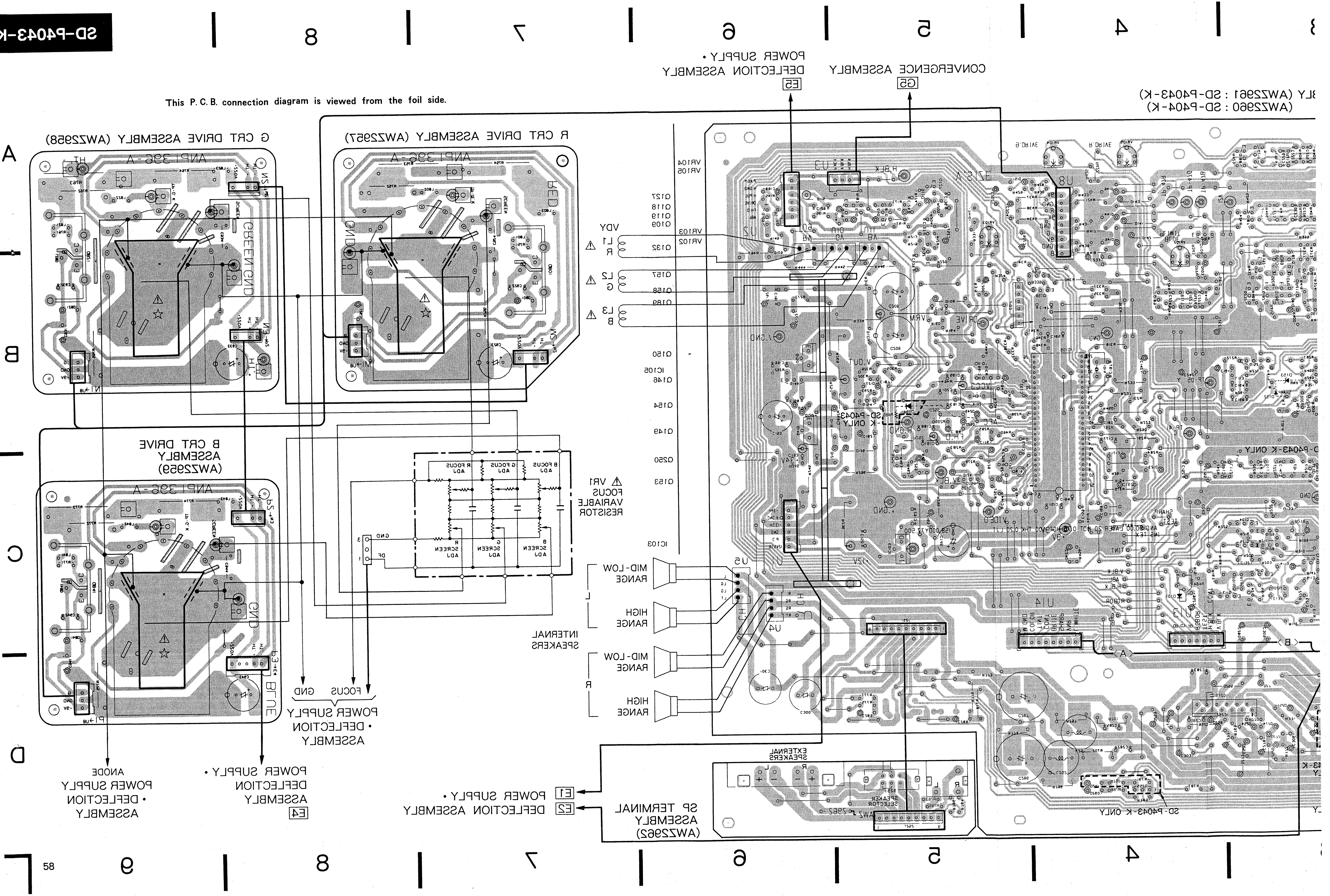

1
2
3
4
5
6
AV I/O-2P • TUNER ASSEMBLY (AWZ2972 : SD-P4043-K)
(AWZ2971 : SD-P404-K)
ANTENNA 75Ω
CONTROL OUT
ANP1400A
S-VIDEO INPUT
VIDEO
VDP
OUTPUT REC (TO VIDEO)
INPUT
VIDEO
VDP
SD-P4043-K ONLY
Q501 Q513
Q504 Q512
Q508 Q528
Q502 Q506
Q505 Q507
VR501
VR502
VR504
Q511
Q522 Q510
Q514 Q509
Q521
IC501
Q520
Q503
IC503
Q515
IC502
Q518
Q517 Q525
Q526
Q527
Q519
Q516
IC504
Q403
Q404
IC405
TC431
Q402
Q433 Q405
Q416
Q430 Q437
Q406
Q407
Q438
IC401 Q409
Q401
Q408
Q410
Q411
Q431
Q429
Q436
Q432 Q434
Q435
Q358
Q357
Q356
VR503
Q372
Q373
Polarity of C387 is reversed in SD-P404-K.
VR505
IC351
Q355
Q371
SD-P404-K ONLY : JUMPER
VR506
Q364
Q353
SD-P404-K ONLY
IC402
Q422
Q426
Q421
IC302
Q420
IC301
Q423
Q419
Q412 Q418
Q417 Q428
Q414
Q413 Q425
Q301
Q303 IC303
Q427
IC404
IC304
Q424
IC403
Q415
Q302
TV FRONT END
VIDEO
RF.AGC
IF.AGC
APC
VIDEO LEVEL
IF.IN
S.ADJ TRAP
S.TRAP
VCO
AFT
LOW.SEP
COMP.IN
MPX.VCO
HIGH.SEP
FIL.ADJ
L.CH
R.CH
GND
FILTER
VT
AWZ
2971
2972
AWV
114-A
115-A
SD-P4043-K ONLY
AWZ
2975
2976
SD-P4043-K ONLY
SD-P4043-K ONLY
POWER
CPU RESET
38V
13.5V
12V STB
AC CLOCK
RELAY
GND
P-P 9V
K1
K2
K3
K4
K5
K6
K7
K8
FRONT
CONV.
OPTION
5V STB
GND
A
B
C
D
SD-P4043-K ONLY
SD-P4043-K ONLY
SD-P4043-K ONLY
POWER SUPPLY • DEFLECTION ASSEMBLY
E1
CONVERGENCE ASSEMBLY
G5
MICOM • SURROUND ASSEMBLY (AWZ2976 : SD-P4043-K)
MICOM ASSEMBLY (AWZ2975 : SD-P404-K)
1
2
3
4
5
6


7
8
9
10
11
12
A
B
C
D
①
②
③
④
SD-P4043-K ONLY
B1
B1 → K3
DPO SENS
POW
INP
CH-
CH+
VOL-
VOL+
STD
AV MEM
DPO
FACT.
PINP
PINPUT
MEMU
ADJ-
ADJ+
SELECT
SET
AWZ 2966
J861
FRONT CONTROL ASSEMBLY
(AWZ2966)
B2
B2 → K3
2968
LOGIC ASSEMBLY (AWZ2955)
AWZ2955
Y3
• SD-P4043-K ONLY
PINP SUB ASSEMBLY
(AWZ3025)
AWZ3025
Y4
Q959
Q962
Q961
Q960
Q957
Q963
IC902 Q901 - Q903 IC901
AWZ2956
PINP SELECT
ASSEMBLY
(AWZ2956)
Y2
Y1
IC987 IC980 IC986 IC983 IC982 IC985 IC984
IC981
Q925
Q926
PINP ASSEMBLY (AWZ2954)
W4
W2
W1
W3
W6
W5
W7
GAIN
TINT
WHITE BAL
AWZ2954
Q358
Q357
Q356
VR503
Q372
Q373
Polarity of C387
is reversed in
SD-P404-K.
VR505
IC351
Q355
Q371
SD-P404-K
ONLY :
JUMPER
VR506
Q364
Q353
SD-P404-K
ONLY
J204
Q422
Q426
Q421
Q420
Q423
Q419
IC402
IC302
IC301
Q412 Q418
Q417 Q428
Q414
Q413 Q425
Q301
Q303 IC303
Q427
IC404
IC304
Q424
Q415 IC403
Q302
J204
ONLY
SD-P4043-K ONLY
TC933
TC931
IC931 IC932
IC934
TC932
Q932 Q938
VR931 VR935
Q940 Q934 Q956
Q939 Q954
VR933
IC933 IC940
Q947
VR934
Q972 Q971 Q968 Q967
IC939
Q944 Q943 Q941
Q951 Q945 Q973
IC936 Q966
Q946 IC938 Q935
IC935
IC937
Q952 Q953 Q970 Q965
Q969 Q955 Q933
Q931 Q942

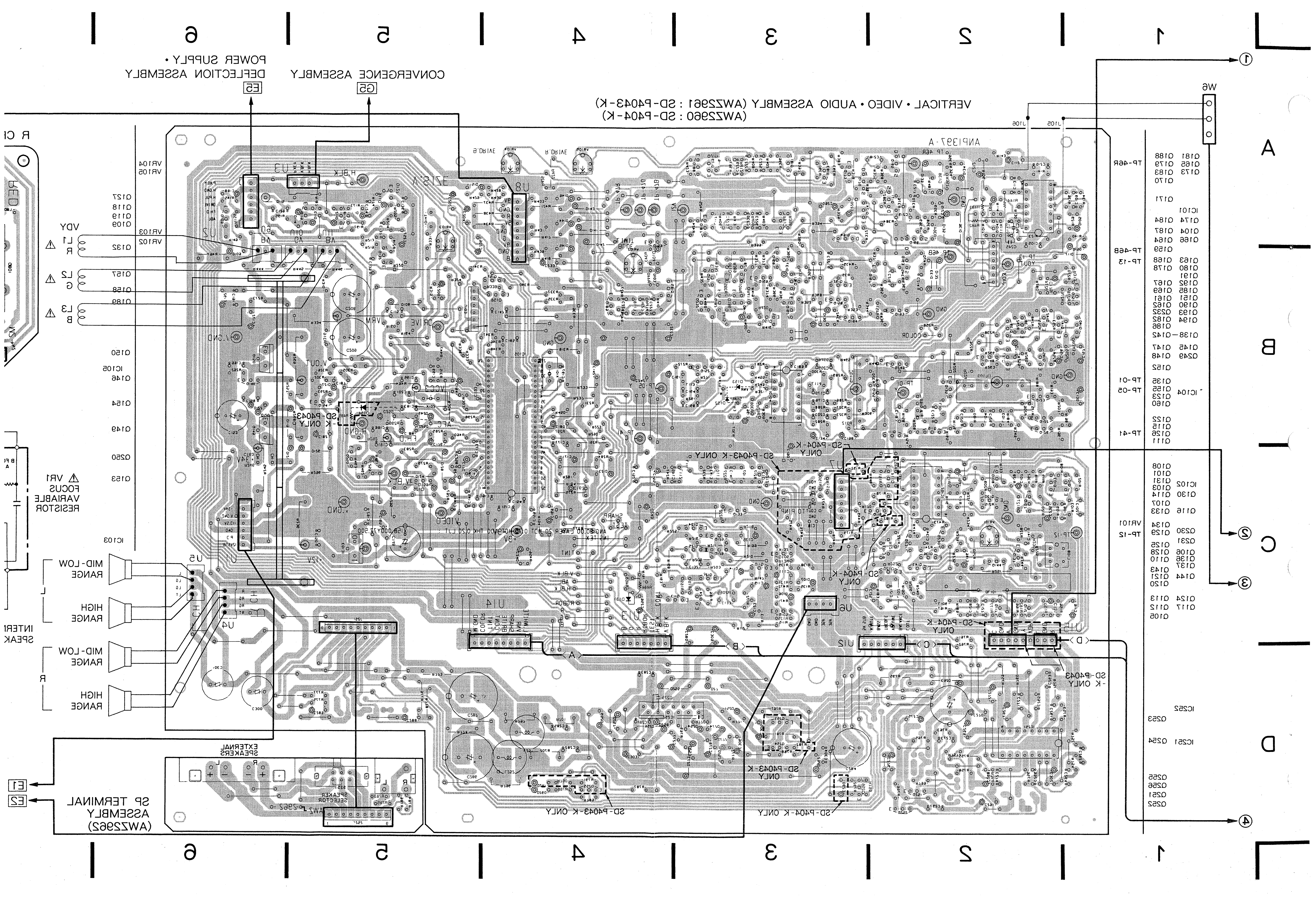

1
2
3
4
5
6
7
A
B
C
D
CONVERGENCE ASSEMBLY
G5
POWER SUPPLY・
DEFLECTION ASSEMBLY
E5
VERTICAL・VIDEO・AUDIO ASSEMBLY (AWZ2961 : SD-P4043-K)
(AWZ2960 : SD-P404-K)
R CRT DR
W6
J105
J106
ANP1397-A
①
②
③
④
Q181 Q188
Q165 Q179
Q173 Q183
Q170
TP-46R
Q171
IC101
Q174 Q184
Q104 Q187
Q166 Q164
Q159
TP-46B
TP-13
Q163 Q168
Q180 Q178
Q191
Q192 Q167
Q185 Q169
Q151 Q161
Q190 Q162
Q193 Q232
Q194 Q182
Q186
Q138 — Q142
Q145 Q147
Q249 Q148
Q152
Q135
TP-01
IC104
Q155
TP-05
Q123
Q160
Q122
Q115
Q126
TP-41
Q111
Q108
Q101
IC102
Q131
Q103
Q130 Q114
Q107
Q116 Q133
Q134
VR101
Q230 Q129
TP-12
Q231
Q125
Q106 Q128
Q136 Q110
Q137
Q143
Q144 Q121
Q120
Q124 Q113
Q117 Q112
Q105
IC252
Q253
IC251 Q254
Q255
Q256
Q251
Q252
VR104
VR105
Q127
Q118
Q119
Q109
VR103
VR102
Q132
Q157
Q158
Q189
Q150
IC105
Q146
Q154
Q149
Q250
Q153
IC103
VDY
L1 ⚠
R
L2 ⚠
G
L3 ⚠
B
⚠ VR1
FOCUS
VARIABLE
RESISTOR
B FOCUS ADJ
B SCREEN ADJ
RED
U3
U2
U8
U5
U4
U6
U7
U12
U13
U14
U15
<A>
<B>
<C>
<D>
SD-P404-K ONLY
SD-P4043-K ONLY
SD-P4043-K ONLY
SD-P404-K ONLY
SD-P4043 -K ONLY
SD-P4043-K ONLY
SD-P404-K ONLY
SD-P4043-K ONLY
SD-P4043 -K ONLY
MID-LOW RANGE
HIGH RANGE
L
MID-LOW RANGE
HIGH RANGE
R
INTERNAL SPEAKERS
EXTERNAL SPEAKERS
SPEAKER SELECTOR
SP TERMINAL ASSEMBLY (AWZ2962)
E1
PO
E2
DE
R.DRIVE
B.DRIVE
H.BLK
DRIVE
VRM
V.GND
V.OUT
VCC3
AFC
F.HD
H.GND
34V
3V
V.BLK
VIDEO
9V
12V
GND
COLOR
SHARP
TINT
V.BLK
ABL
H.BLK
RGBOR
WHITE
VNR
SHARP
BRITE
CONT
TINT
COLOR
M.GND
TP-46R
TP-46B
TP-47B
TP-47G
TP-47R
TP-13
TP-01
TP-05
TP-41
TP-12
BLUE
LIMIT
YOUT
TO P/INP
BALANCE
VOLUME
TREBLE
BASS
M.MUTE
5V STB
35V
15V
GND
GND


4
5
6
7
8
9
A
B
C
D
Y (AWZ2961 : SD-P4043-K)
(AWZ2960 : SD-P404-K)
CONVERGENCE ASSEMBLY
G5
POWER SUPPLY •
DEFLECTION ASSEMBLY
E5
R CRT DRIVE ASSEMBLY (AWZ2957)
G CRT DRIVE ASSEMBLY (AWZ2958)
B CRT DRIVE ASSEMBLY (AWZ2959)
ANP1396-A
RED
GREEN
BLUE
GND
VR104
VR105
Q127
Q118
Q119
Q109
VR103
VR102
Q132
Q157
Q158
Q189
Q150
IC105
Q146
Q154
Q149
Q250
Q153
IC103
VDY
L1 R ⚠
L2 G ⚠
L3 B ⚠
⚠ VR1
FOCUS
VARIABLE
RESISTOR
B FOCUS ADJ
G FOCUS ADJ
R FOCUS ADJ
B SCREEN ADJ
G SCREEN ADJ
R SCREEN ADJ
GND
DF
FOCUS
GND
POWER SUPPLY
• DEFLECTION
ASSEMBLY
POWER SUPPLY •
DEFLECTION
ASSEMBLY
E4
ANODE
POWER SUPPLY
• DEFLECTION
ASSEMBLY
MID-LOW RANGE
HIGH RANGE
L
MID-LOW RANGE
HIGH RANGE
R
INTERNAL
SPEAKERS
EXTERNAL
SPEAKERS
SPEAKER SELECTOR
SP TERMINAL
ASSEMBLY
(AWZ2962)
E1
E2
POWER SUPPLY •
DEFLECTION ASSEMBLY
U2
U3
U4
U5
U8
U9
U10
U11
U13
U14
M1
M2
N1
N2
N3
P1
P2
P3
SD-P4043
-K ONLY
SD-P4043-K ONLY
P4043-K ONLY
V.SIZE
H.BLK
DRIVE
VRM
V.GND
V.OUT
VCC3
AFC
H.GND
V.BLK
VIDEO
TINT
V.BLK
ABL
H.BLK
RGBOR
WHITE
SHARP
BRITE
CONT
TINT
COLOR
M.GND
SHARP
TEST
ANG 80.00 LAYER 20 WDT 0.75 HGT 900 THK 0.20 LJT
INS TEX
X 158.000 Y 77.500
<A>
<B>
TP-05
TP-41
TP-47B
TP-47G
TP-47R
R.DRIVE
B.DRIVE
12V
-12V
9V
34V
CH

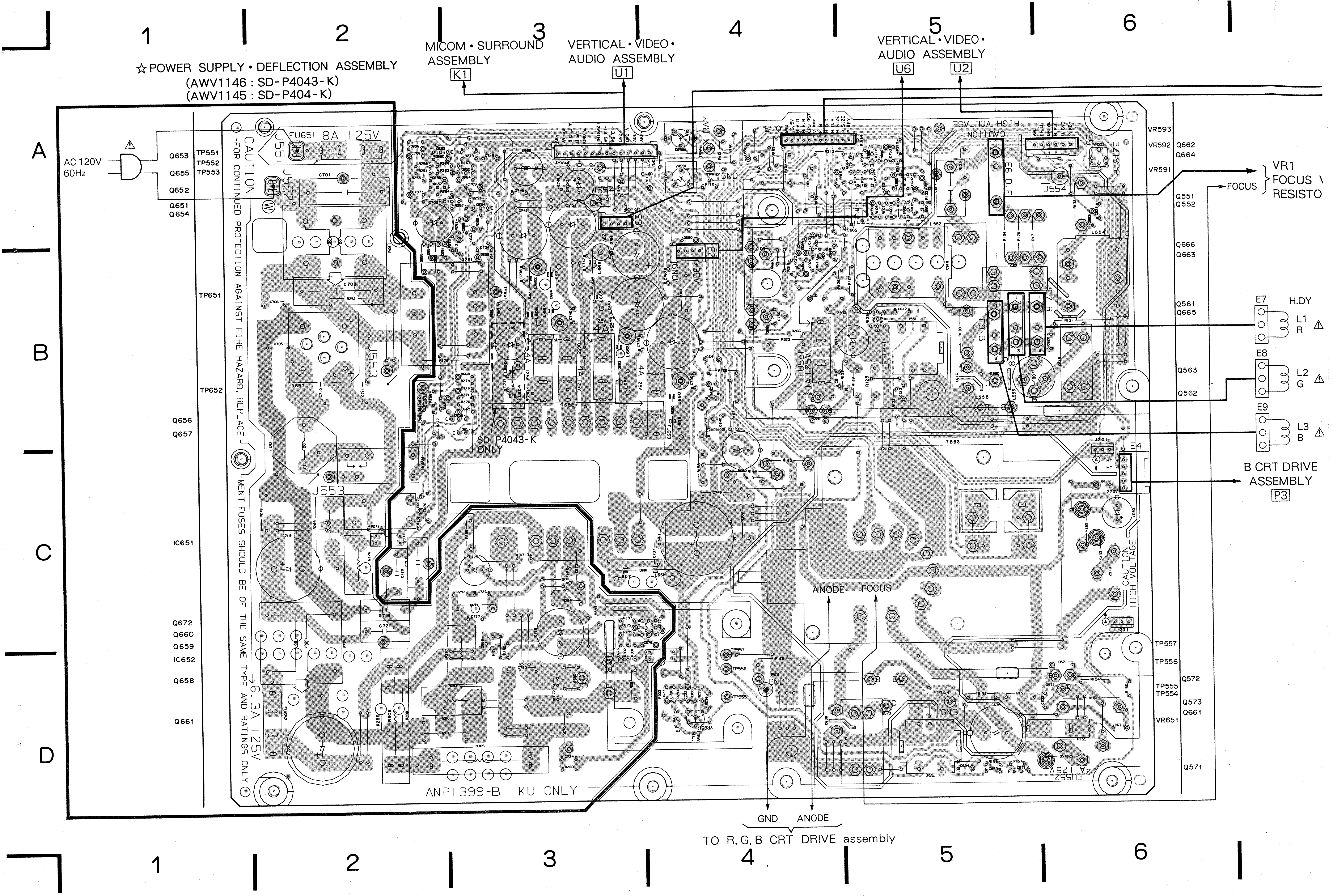
This P. C. B. connection diagram is viewed from the foil side.


SD-P4043-K
9
8
7
6
5
4
3
A
B
C
D
POWER SUPPLY • DEFLECTION ASSEMBLY
E5
CONVERGENCE ASSEMBLY
G5
LY (AWZ2961 : SD-P4043-K)
(AWZ2960 : SD-P404-K)
G CRT DRIVE ASSEMBLY (AWZ2958)
R CRT DRIVE ASSEMBLY (AWZ2957)
B CRT DRIVE ASSEMBLY (AWZ2959)
ANP1396-A
GREEN
RED
BLUE
GND
VR104
VR105
VR103
VR102
VDY
L1
R
L2
G
L3
B
IC103
VR1 FOCUS VARIABLE RESISTOR
R FOCUS
G FOCUS
B FOCUS
R SCREEN
G SCREEN
B SCREEN
MID-LOW RANGE
HIGH RANGE
L
R
INTERNAL SPEAKERS
FOCUS
GND
POWER SUPPLY • DEFLECTION ASSEMBLY
ANODE
POWER SUPPLY • DEFLECTION ASSEMBLY
E4
E1
E2
SP TERMINAL ASSEMBLY (AWZ2962)
EXTERNAL SPEAKERS
SPEAKER SELECTOR
SD-P4043-K ONLY
U2
U3
U4
U5
U8
U13
U14

VERTICAL • VIDEO • AUDIO ASSEMBLY (AWZ2961 : SD-P4043-K)
(AWZ2960 : SD-P404-K)


6
5
4
3
2
1
A
B
C
D
POWER SUPPLY •
DEFLECTION ASSEMBLY
E5
CONVERGENCE ASSEMBLY
G5
W6
J106
J105
ANP1397-A
①
②
③
④
TP-46R
TP-46B
TP-13
TP-01
TP-05
TP-41
TP-12
VR101
IC101
IC102
IC103
IC104
IC105
IC251
IC252
VR104
VR105
VR103
VR102
VDY
L1
R
L2
G
L3
B
VR1
FOCUS
VARIABLE
RESISTOR
MID-LOW
RANGE
HIGH
RANGE
L
R
U1
U2
U3
U4
U5
U6
U7
U8
U12
U13
U14
U15
<A>
<B>
<C>
<D>
SD-P4043-K ONLY
SD-P404-K ONLY
EXTERNAL
SPEAKERS
SPEAKER
SELECTOR
E1
E2
SP TERMINAL
ASSEMBLY
(AWZ2962)
R CH
L CH
GND
DRIVE
V.OUT
VRM
COLOR
H.BLK
Q181 Q188
Q165 Q179
Q173 Q183
Q170
Q171
Q174 Q184
Q104 Q187
Q166 Q164
Q159
Q163 Q168
Q180 Q178
Q191
Q192 Q167
Q185 Q169
Q151 Q161
Q190 Q162
Q193 Q232
Q194 Q182
Q186
Q138—Q142
Q145 Q147
Q249 Q148
Q152
Q135
Q155
Q123
Q160
Q122
Q115
Q126
Q111
Q108
Q101
Q131
Q103
Q114
Q107
Q133
Q130
Q116
Q134
Q230 Q129
Q231
Q125
Q106 Q128
Q136 Q110
Q137
Q143
Q144 Q121
Q120
Q124 Q113
Q117 Q112
Q105
Q253
Q254
Q255
Q256
Q251
Q252
Q127
Q118
Q119
Q109
Q132
Q157
Q158
Q189
Q150
Q146
Q154
Q149
Q250
Q153

☆POWER SUPPLY • DEFLECTION ASSEMBLY
(AWV1146 : SD-P4043-K)
(AWV1145 : SD-P404-K)


1
2
3
4
5
6
A
B
C
D
MICOM • SURROUND ASSEMBLY
K1
VERTICAL • VIDEO • AUDIO ASSEMBLY
U1
VERTICAL • VIDEO • AUDIO ASSEMBLY
U6
U2
AC 120V 60Hz
FU651 8A 125V
J551
J552
CAUTION -FOR CONTINUED PROTECTION AGAINST FIRE HAZARD, REPLACE MENT FUSES SHOULD BE OF THE SAME TYPE AND RATINGS
6.3A 125V
SD-P4043-K ONLY
ANP1399-B KU ONLY
CAUTION HIGH VOLTAGE
VR1 FOCUS \ RESISTO
FOCUS
E7 H.DY L1 R
E8 L2 G
E9 L3 B
B CRT DRIVE ASSEMBLY
P3
ANODE
FOCUS
GND
ANODE
TO R, G, B CRT DRIVE assembly
Q653
Q655
Q652
Q651
Q654
TP551
TP552
TP553
TP651
TP652
Q656
Q657
IC651
Q672
Q660
Q659
IC652
Q658
Q661
VR593
VR592
VR591
Q662
Q664
Q551
Q552
Q666
Q663
Q561
Q665
Q563
Q562
TP557
TP556
TP555
TP554
VR651
Q572
Q573
Q661
Q571
FU551 1A 125V
FU552 4A 125V
J553
J554
E2
E3
E4
E6
E10
T553
H.SIZE

NOTE

1. This P.C.B connection diagram is viewed from the parts mounted side.
2. The parts which have been mounted on the board can be replaced with those shown with the corresponding wiring symbols listed in the following Table.

P.C.B. pattern diagram indication	Corresponding part symbol	Part Name
E Q504	E or E	Transistor
Q215	or	Radiator type transistor
D203	D203	Diode
R237	R237	Resistor
C513	+	Capacitor (Polarity)
C518		Capacitor (Non-polarity)

Others

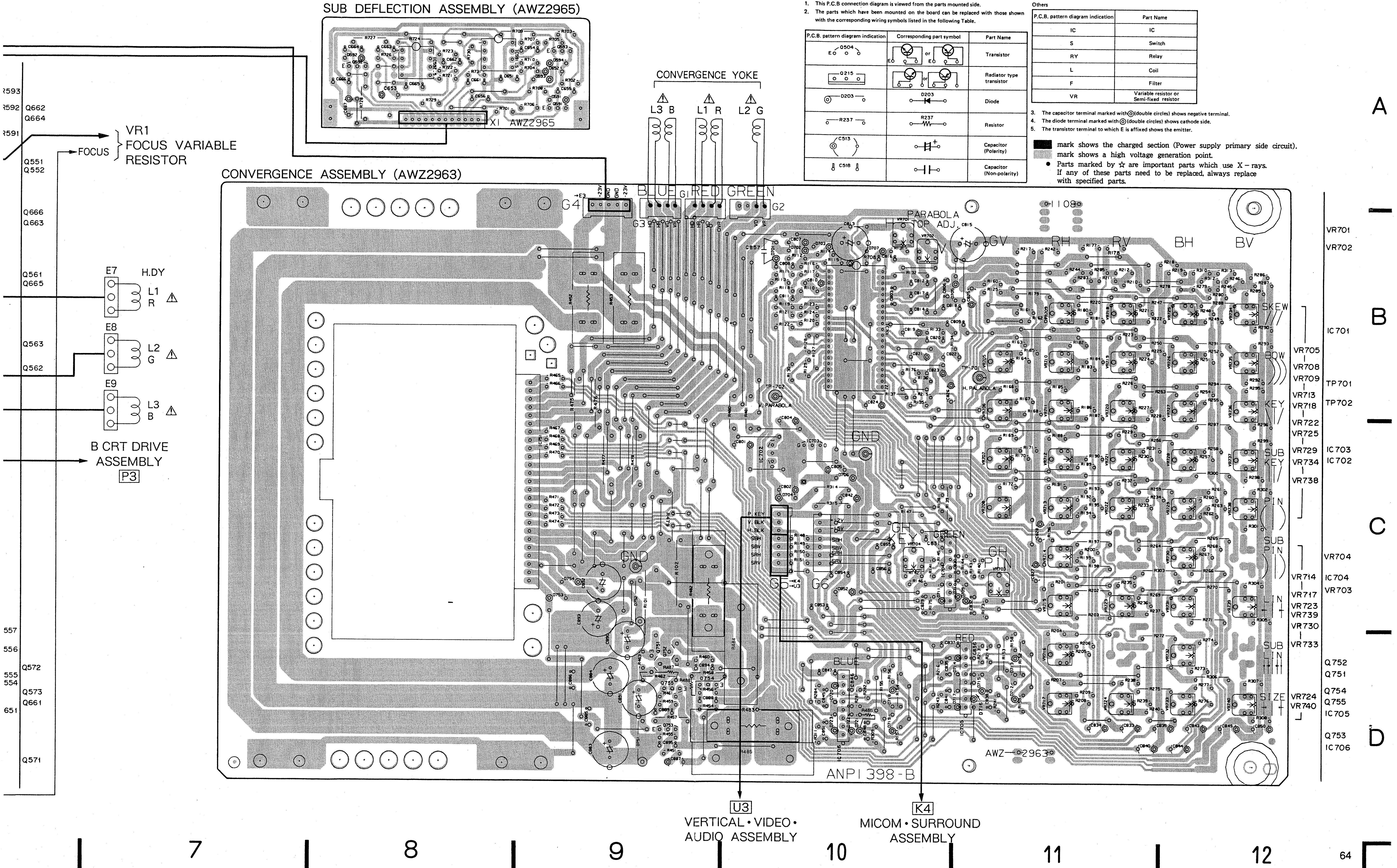
P.C.B. pattern diagram indication	Part Name
IC	IC
S	Switch
RY	Relay
L	Coil
F	Filter
VR	Variable resistor or Semi-fixed resistor

3. The capacitor terminal marked with ◎ (double circles) shows negative terminal.
4. The diode terminal marked with ◎ (double circles) shows cathode side.
5. The transistor terminal to which E is affixed shows the emitter.

■ mark shows the charged section (Power supply primary side circuit).

▨ mark shows a high voltage generation point.

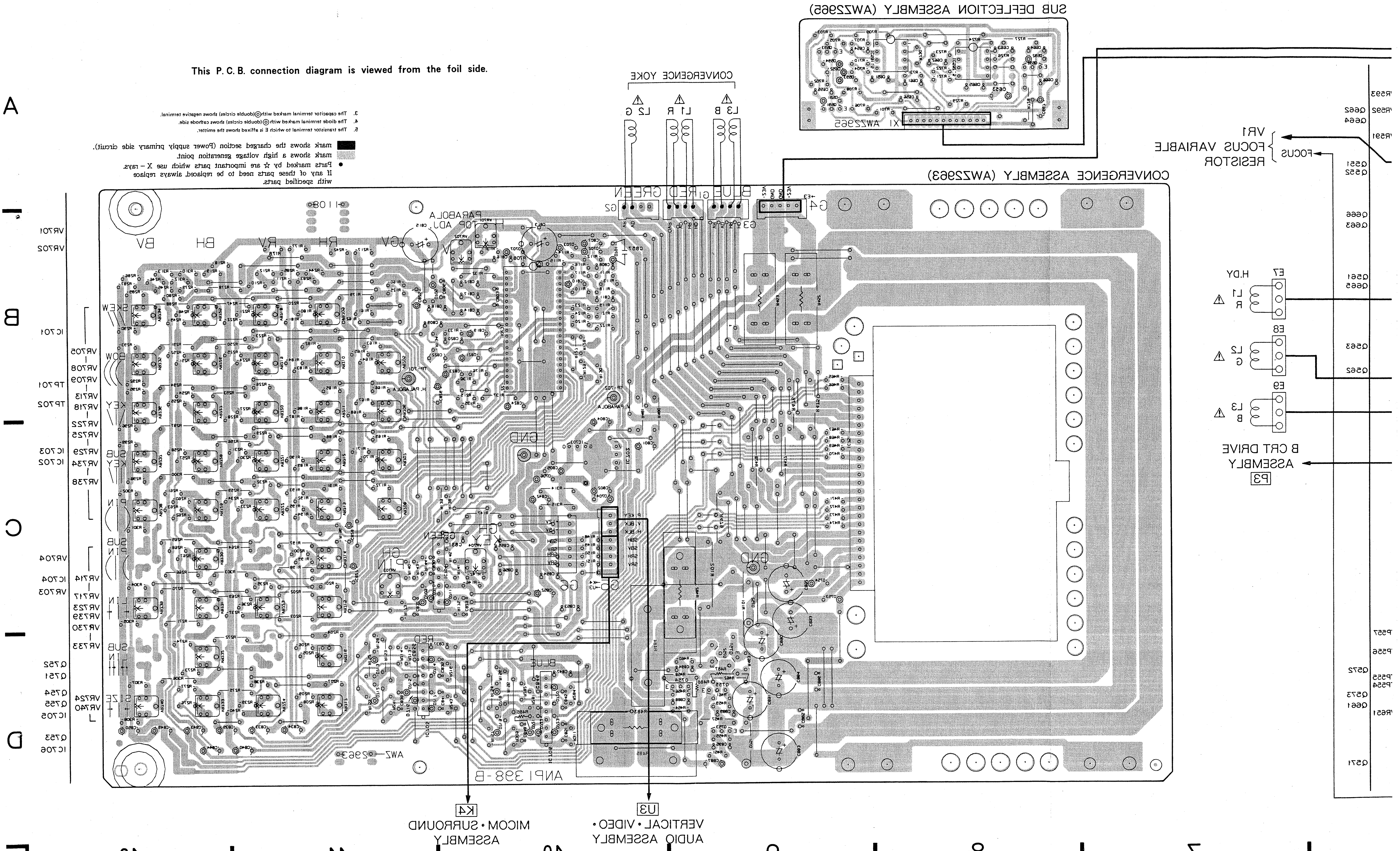
- Parts marked by ☆ are important parts which use X – rays. If any of these parts need to be replaced, always replace with specified parts.

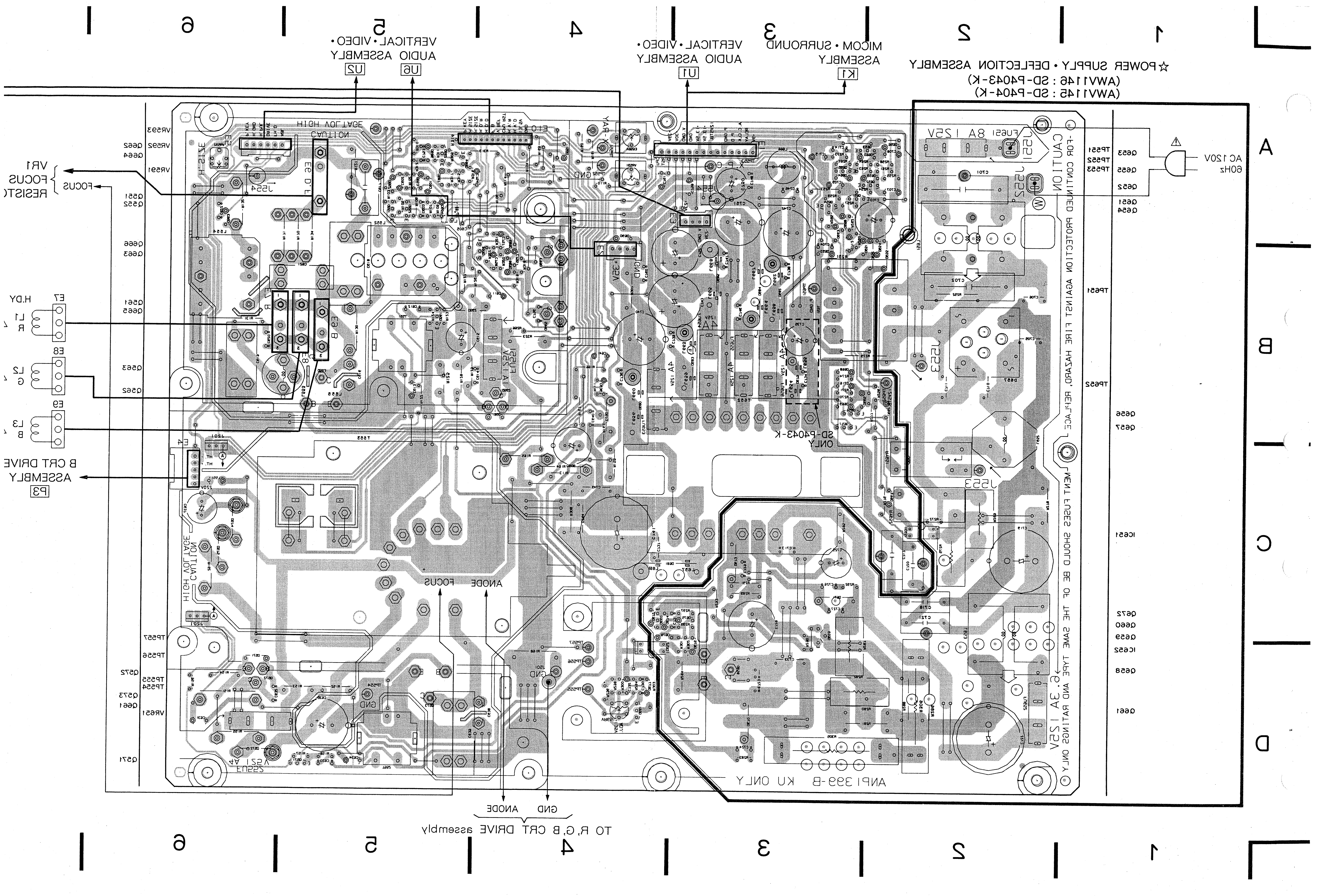

7
8
9
10
11
12
A
B
C
D
SUB DEFLECTION ASSEMBLY (AWZ2965)
X1 AWZ2965
CONVERGENCE YOKE
L3 B
L1 R
L2 G
VR1 FOCUS VARIABLE RESISTOR
FOCUS
CONVERGENCE ASSEMBLY (AWZ2963)
E7 H.DY L1 R
E8 L2 G
E9 L3 B
B CRT DRIVE ASSEMBLY P3
G4
G3
G1
G2
BLUE
RED
GREEN
PARABOLA TOP ADJ.
GV
RH
RV
BH
BV
SKEW
BOW
KEY
SUB KEY
PIN
SUB PIN
LIN
SUB LIN
SIZE
GND
GH KEY
GREEN
GH PIN
TP-701 H. PARABOLA
TP-702 V. PARABOLA
IC702
IC703
P.KEY
V.BLK
H.BLK
SBH
SBV
SRH
SRV
G5
G6
K4 U3
AWZ-2963
ANP1398-B
U3 VERTICAL • VIDEO • AUDIO ASSEMBLY
K4 MICOM • SURROUND ASSEMBLY
R593
R592
R591
Q662
Q664
Q551
Q552
Q666
Q663
Q561
Q665
Q563
Q562
557
556
555
554
651
Q572
Q573
Q661
Q571
VR701
VR702
IC701
VR705
VR708
VR709
VR713
VR718
VR722
VR725
VR729
VR734
VR738
TP701
TP702
IC703
IC702
VR704
VR714
VR717
VR723
VR739
VR730
VR733
IC704
VR703
Q752
Q751
Q754
Q755
IC705
VR724
VR740
Q753
IC706

This P. C. B. connection diagram is viewed from the foil side.

3. The capacitor terminal marked with ◎ (double circles) shows negative terminal.
4. The diode terminal marked with ◎ (double circles) shows cathode side.
5. The transistor terminal to which E is affixed shows the emitter.

- ■ mark shows the charged section (Power supply primary side circuit).
- ▨ mark shows a high voltage generation point.
- ● Parts marked by ☆ are important parts which use X − rays. If any of these parts need to be replaced, always replace with specified parts.


SUB DEFLECTION ASSEMBLY (AWZ2965)
AWZ2965
CONVERGENCE YOKE
L3 B
L1 R
L2 G
CONVERGENCE ASSEMBLY (AWZ2963)
BLUE
RED
GREEN
G2
G3
G4
PARABOLA TOP ADJ.
BV
BH
RV
RH
GV
H
V
SKEW
BOW
KEY
SUB KEY
PIN
SUB PIN
LIN
SUB LIN
SIZE
H. PARABOLA
V. PARABOLA
TP701
TP702
GND
GREEN
GH
GV
KEY
PIN
RED
BLUE
P. KEY
V. BLK
H. BLK
AWZ-2963
ANP1398-B
VR701
VR702
IC701
VR705
VR708
VR709
VR713
VR718
VR722
VR725
VR729
VR734
VR738
IC703
IC702
VR704
VR714
VR717
VR723
VR739
VR730
VR733
IC704
VR703
Q752
Q751
Q754
Q755
IC705
VR724
VR740
Q753
IC706
E7 H.DY L1 R
E8 L2 G
E9 L3 B
B CRT DRIVE ASSEMBLY P3
VR1 FOCUS VARIABLE RESISTOR
FOCUS
R593
R592
Q662
Q664
R591
Q551
Q552
Q666
Q663
Q561
Q565
Q563
Q562
P557
P556
Q572
P555
P554
Q573
Q661
R651
Q571
K4 MICOM • SURROUND ASSEMBLY
U3 VERTICAL • VIDEO • AUDIO ASSEMBLY
A
B
C
D


☆POWER SUPPLY • DEFLECTION ASSEMBLY
(AWV1146 : SD-P4043-K)
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MICOM • SURROUND ASSEMBLY
K1
VERTICAL • VIDEO • AUDIO ASSEMBLY
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VERTICAL • VIDEO • AUDIO ASSEMBLY
U6
U2
AC 120V 60Hz
VR1 FOCUS RESISTOR
FOCUS
E7 H.DY
L1 R
E8
L2 G
E9
L3 B
B CRT DRIVE ASSEMBLY
P3
HIGH VOLTAGE CAUTION
FOCUS
ANODE
GND
ANODE
TO R,G,B CRT DRIVE assembly
SD-P4043-K ONLY
ANP1399-B KU ONLY
CAUTION -FOR CONTINUED PROTECTION AGAINST FIRE HAZARD, REPLACEMENT FUSES SHOULD BE OF THE SAME TYPE AND RATINGS ONLY
FU551 8A 125V
FU552 6.3A 125V
FU553 4A 125V
J551
J552
J553
J554
1
2
3
4
5
6
A
B
C
D

8. P. C. B's PARTS LIST

NOTES :

- Parts without part number cannot be supplied.
- Parts marked by "◉" are not always kept in stock. Their delivery time may be longer than usual or they may be unavailable.
- The ⚠ mark found on some component parts indicates the importance of the safety factor of the part. Therefore, when replacing, be sure to use parts of identical designation.
- When ordering resistors, first convert resistance values into code form as shown in the following examples.

Ex.1 When there are 2 effective digits (any digit apart from 0), such as 560 ohm and 47k ohm (tolerance is shown by J = 5 %, and K = 10 %).

560 Ω→56×10^1 →561 ······························ RD1/4PS$\boxed{5}\boxed{6}\boxed{1}$J
47k Ω→47×10^3 →473 ······························ RD1/4PS$\boxed{4}\boxed{7}\boxed{3}$J
0.5 Ω→0R5 ······························ RN2H$\boxed{0}\boxed{R}\boxed{5}$K
1 Ω→010 ······························ RS1P$\boxed{0}\boxed{1}\boxed{0}$K

Ex.2 When there are 3 effective digits (such as in high precision metal film resistors).

5.62k Ω→562×10^1 →5621 ······························ RN1/4SR$\boxed{5}\boxed{6}\boxed{2}\boxed{1}$F

- Parts marked by ☆ are important parts which use X-rays. If any of these parts need to be replaced, always replace with specified parts.
- Parts marked by × are important parts which use X-rays. If a failure occurs in any of these parts, replace the printed circuit board assembly where the relevant part has already been adjusted as a working component. Do not replace the actual part itself. If any part marked by × is replaced, there is danger of being exposed to X-rays.

PINP assembly (AWZ2954)

SEMICONDUCTORS

Mark	NO Description	Part NO.
	IC931	TMS4461-12NL
	IC932	TC4094BP
	IC933	TC4069UBP
	IC934 P-IN-P CONTROLLER IC	TMC3499PJ
	IC935 P-IN-P CHROMA DECODE	HA11532NT
	IC936, 937	TC4066BP
	IC938	NJM2217L
	IC939	HA11525NT
	IC940	UPC78M05H
	Q931 TRANSISTOR	2SA933S
	Q932 TRANSISTOR	2SC1740S
	Q933 TRANSISTOR	2SA933S
	Q934, 935 TRANSISTOR	2SC1740S
	Q938-940 TRANSISTOR	2SC1740S
	Q941 TRANSISTOR	2SA933S
	Q942-947 TRANSISTOR	2SC1740S
	Q951 TRANSISTOR	2SA933S
	Q952 TRANSISTOR	2SC1740S
	Q953 TRANSISTOR	2SA933S
	Q954, 955 TRANSISTOR	2SC1740S
	Q956 TRANSISTOR	2SA933S
	Q965-969 TRANSISTOR	2SC1740S
	Q970 TRANSISTOR	2SA933S
	Q971 TRANSISTOR	2SC1740S
	Q972, 973 TRANSISTOR	2SA933S
	D932-935 DIODE	1SS252

COILS

Mark	NO Description	Part NO.
	L931 AXIAL INDUCTOR	LAU100K
	L933, 934 AXIAL INDUCTOR	LAU221K
	L938 AXIAL INDUCTOR	LAU330K
	L939 AXIAL INDUCTOR	LAU5R6K
	L940 AXIAL INDUCTOR	LAU820K
	L941 AXIAL INDUCTOR	LAU560K
	L943 AXIAL INDUCTOR	LAU470K
	L944-947 AXIAL INDUCTOR	LAU100K
	L950 AXIAL INDUCTOR	LAU100K
	L951 AXIAL INDUCTOR	LAU470K
	L952 COIL(1000μH)	ATH1046
	L953	LAUR22M

CAPACITORS

Mark	NO Description	Part NO.
	TC931-933 CERAMIC TRIMMER	ACM-020
	C101 ELECTR. CAPACITOR	CEAS100M50
	C103-110 CERAMIC CAPACITOR	CKDYF473Z50
	C111 CERAMIC CAPACITOR	CCCCH680J50
	C114 ELECTR. CAPACITOR	CEAS4R7M50
	C115 CERAMIC CAPACITOR	CKDYF473Z50
	C116 ELECTR. CAPACITOR	CEAS010M50
	C117 CERAMIC CAPACITOR	CCDUJ560J50
	C118 CERAMIC CAPACITOR	CCCSL820J50
	C121 CERAMIC CAPACITOR	CCCSL271J50
	C122 CERAMIC CAPACITOR	CCCSL181J50
	C123 CERAMIC CAPACITOR	CCDUJ270J50
	C125 MYLOR FILM CAPACITOR	CQMA152J50
	C126 ELECTR. CAPACITOR	CEAS010M50
	C127 ELECTR. CAPACITOR	CEASR47M50
	C128 CERAMIC CAPACITOR	CKDYB222K50
	C129, 130 CERAMIC CAPACITOR	CKDYF473Z50
	C131 CERAMIC CAPACITOR	CKDYB102K50
	C132 CERAMIC CAPACITOR	CKDYF473Z50
	C133 CERAMIC CAPACITOR	CCCSL150J50
	C134 CERAMIC CAPACITOR	CKDYF473Z50
	C135 MYLOR FILM CAPACITOR	CQMA333J50
	C136 CERAMIC CAPACITOR	CKDYF473Z50
	C138-141 CERAMIC CAPACITOR	CKDYF473Z50
	C142 CERAMIC CAPACITOR	CKDYF103Z50
	C144 CERAMIC CAPACITOR	CKDYF473Z50
	C145 ELECTR. CAPACITOR	CEAS4R7M50
	C146 CERAMIC CAPACITOR	CKDYF223Z50
	C147 ELECTR. CAPACITOR	CEAS010M50
	C148 CERAMIC CAPACITOR	CCCCH100D50

Mark	NO	Description	Part NO.
	C149	ELECTR. CAPACITOR	CEAS0R1M50
	C150	CERAMIC CAPACITOR	CKDYB332K50
	C151	CERAMIC CAPACITOR	CCCSL330J50
	C152	CERAMIC CAPACITOR	CKCYB331K50
	C153	CERAMIC CAPACITOR	CCCSL390J50
	C154	CERAMIC CAPACITOR	CCCCH390J50
	C156	CERAMIC CAPACITOR	CCCSL470J50
	C162	CERAMIC CAPACITOR	CKDYF103Z50
	C163	CERAMIC CAPACITOR	CCCCH101J50
	C164	ELECTR. CAPACITOR	CEAS0R1M50
	C165	CERAMIC CAPACITOR	CCCCH220J50
	C166	ELECTR. CAPACITOR	CEAS221M10
	C167	ELECTR. CAPACITOR	CEAS010M50
	C168	CERAMIC CAPACITOR	CKDYF103Z50
	C169	MYLOR FILM CAPACITOR	CQMA152J50
	C170	CERAMIC CAPACITOR	CCCSL470J50
	C171	MYLOR FILM CAPACITOR	CQMA333J50
	C173	ELECTR. CAPACITOR	CEAS2R2M50
	C174	CERAMIC CAPACITOR	CKDYF473Z50
	C176	ELECTR. CAPACITOR	CEAS4R7M50
	C177	CERAMIC CAPACITOR	CKDYB102K50
	C178	ELECTR. CAPACITOR	CEAS101M10
	C179	CERAMIC CAPACITOR	CKDYF473Z50
	C180	ELECTR. CAPACITOR	CEASR22M50
	C181	ELECTR. CAPACITOR	CEAS2R2M50
	C182	CERAMIC CAPACITOR	CKCYX333M25
	C184	ELECTR. CAPACITOR	CEAS2R2M50
	C185	CERAMIC CAPACITOR	CKDYB102K50
	C186	CERAMIC CAPACITOR	CCCCH100D50
	C187	ELECTR. CAPACITOR	CEAS221M16
	C188	CERAMIC CAPACITOR	CCCCH680J50
	C189	CERAMIC CAPACITOR	CKCYX104M25
	C190	ELECTR. CAPACITOR	CEAS100M50
	C191	CERAMIC CAPACITOR	CCCSL150J50
	C192	ELECTR. CAPACITOR	CEAS221M10
	C193	CERAMIC CAPACITOR	CKCYX104M25
	C194	ELECTR. CAPACITOR	CEAS221M10
	C195	ELECTR. CAPACITOR	CEAS010M50
	C196	CERAMIC CAPACITOR	CKCYX104M25
	C197	CERAMIC CAPACITOR	CKDYF103Z50
	C198	ELECTR. CAPACITOR	CEAS221M10
	C199	CERAMIC CAPACITOR	CKDYB102K50
	C200	ELECTR. CAPACITOR	CEAS101M10
	C201	CERAMIC CAPACITOR	CKDYF103Z50
	C202	CERAMIC CAPACITOR	CKDYF473Z50
	C203	CERAMIC CAPACITOR	CKDYF103Z50
	C204	ELECTR. CAPACITOR	CEAS221M16
	C205	CERAMIC CAPACITOR	CCCCH680J50
	C206	CERAMIC CAPACITOR	CKDYB102K50
	C207	ELECTR. CAPACITOR	CEAS470M10
	C209	CERAMIC CAPACITOR	CKDYF473Z50
	C210	ELECTR. CAPACITOR	CEAS221M10
	C211	CERAMIC CAPACITOR	CKDYB103K50
	C212	ELECTR. CAPACITOR	CEAS220M25
	C218	CERAMIC CAPACITOR	CKDYB103K50

Mark	NO	Description	Part NO.
	C219	CERAMIC CAPACITOR	CKCYB681K50
	C220	ELECTROLYTIC CAPACIT	CEAS102M6
	C221	ELECTR. CAPACITOR	CEAS220M25
	C222	ELECTR. CAPACITOR	CEAS330M16
	C223	ELECTR. CAPACITOR	CEAS101M10
	C225	CERAMIC CAPACITOR	CCCSL470J50
	C226	CERAMIC CAPACITOR	CCCSL101J50
	C227, 228	MYLOR FILM CAPACITOR	CQMA103J50
	C229-231	ELECTR. CAPACITOR	CEAS010M50
	C232	ELECTR. CAPACITOR	CEAS0R1M50
	C233	ELECTR. CAPACITOR	CEAS220M25
	C234	CERAMIC CAPACITOR	CKDYX473M25
	C235	CERAMIC CAPACITOR	CCCSL220J50
	C237	CERAMIC CAPACITOR	CCDSL470J50

RESISTORS

	VR931	VR (220Ω)	ACP1038
	VR933	VR (2.2kΩ)	ACP1041
	VR934	VR (22kΩ)	ACP1044
	VR935	VR (1kΩ)	ACP1040
		Other resistors	RD1/8PM□□□J

OTHERS

	DL931	DELAY LINE	ATN1022
	X931	CERAMIC RESONATOR (503.5kHz)	ASS1032
	X932, 933	CRYSTAL RESONATOR (3.579545MHz)	ASS-028
	X934	CERAMIC RESONATOR (503.5kHz)	ASS1032

PINP SUB Assembly (AWZ3025)

SEMICONDUCTORS

	Q957	N-FET	2SK117
	Q959	TRANSISTOR	2SA933S
	Q960-963	TRANSISTOR	2SC1740S

COILS

	L936, 937	AXIAL INDUCTOR	LAU221K

CAPACITORS

	C112, 113	ELECTR. CAPACITOR	CEAS010M50
	C160, 161	CERAMIC CAPACITOR	CKDYB332K50
	C214	CERAMIC CAPACITOR	CCCSL221J50
	C215	CERAMIC CAPACITOR	CCCCH220J50
	C216, 217	CERAMIC CAPACITOR	CCCSL101J50
	C224	ELECTR. CAPACITOR	CEJA470M10

RESISTORS

		All resistors	RD1/8PM□□□J

R. CRT DRIVE Assembly (AWZ2957)

SEMICONDUCTORS

	Q801	TRANSISTOR	2SC2278
	D801	DIODE	1SS252

COILS

	L801, 802	AXIAL INDUCTOR	LAU470K
	L803	AXIAL INDUCTOR	LAU101K

Mark	NO	Description	Part NO.

CAPACITORS

	C921	ELECTR. CAPACITOR	CEAS101M16
	C922	CERAMIC CAPACITOR	CKCYB681K50
	C923	ELECTR. (4.7μ/250V)	ACH-378
	C924	CERAMIC (1000p/2kV)	ACG1001

RESISTORS

	R751	CARBONFILM RESISTOR	RD1/8PM103J
	R752	RESISTOR(1K, 1/2W)	ACN1006
	R753, 754	METAL OXIDE RESISTOR	RS3LMF332J
	R755	RESISTOR(47, 1/2W)	ACN-225

OTHERS

		CRT SOCKET	AKG1004

G. CRT DRIVE Assembly (AWZ2958)

SEMICONDUCTORS

	Q821	TRANSISTOR	2SC2278
	D821	DIODE	1SS252

COILS

	L821, 822	AXIAL INDUCTOR	LAU470K
	L823	AXIAL INDUCTOR	LAU101K

CAPACITORS

	C931	ELECTR. CAPACITOR	CEAS101M16
	C932	CERAMIC CAPACITOR	CKCYB681K50
	C933	ELECTR. (4.7μ/250V)	ACH-378
	C934	CERAMIC (1000p/2kV)	ACG1001

RESISTORS

	R761	CARBONFILM RESISTOR	RD1/8PM103J
	R762	RESISTOR(1K, 1/2W)	ACN1006
	R763, 764	METAL OXIDE RESISTOR	RS3LMF332J
	R765	RESISTOR(47, 1/2W)	ACN-225

OTHERS

		CRT SOCKET	AKG1004

B. CRT DRIVE Assembly (AWZ2959)

SEMICONDUCTORS

	Q841	TRANSISTOR	2SC2278
	D841	DIODE	1SS252

COILS

	L841, 842	AXIAL INDUCTOR	LAU470K
	L843	AXIAL INDUCTOR	LAU101K

CAPACITORS

	C941	ELECTR. CAPACITOR	CEAS101M16
	C942	CERAMIC CAPACITOR	CKCYB681K50
	C943	ELECTR. (4.7μ/250V)	ACH-378
	C944	CERAMIC (1000p/2kV)	ACG1001

RESISTORS

	R771	CARBONFILM RESISTOR	RD1/8PM103J
	R772	RESISTOR(1K, 1/2W)	ACN1006
	R773, 774	METAL OXIDE RESISTOR	RS3LMF332J
	R775	RESISTOR(47, 1/2W)	ACN-225

OTHERS

		CRT SOCKET	AKG1004

Mark	NO	Description	Part NO.

VERTICAL・VIDEO・AUDIO Assembly (AWZ2961)

SEMICONDUCTORS

	TH101	THERMISTOR (100Ω)	TH101-2
	IC101		TC4011BP
	IC102		TC4066BP
	IC103		NJM78M09A
	IC104		PA0030
	IC105		AN5302K
	IC251		TA7630P
	IC252		TA8200AH
	Q101, 103	TRANSISTOR	2SA933S
	Q104-107	TRANSISTOR	2SC1740S
	Q108	TRANSISTOR	2SA933S
	Q109, 111	TRANSISTOR	2SC1740S
	Q112-118	TRANSISTOR	2SA933S
	Q119-121	TRANSISTOR	2SC1740S
	Q122, 123	TRANSISTOR	2SA933S
	Q124	TRANSISTOR	2SC1740S
	Q125, 126	TRANSISTOR	2SA933S
	Q127	TRANSISTOR	2SC1740S
	Q128, 129	TRANSISTOR	2SA933S
	Q130-132	TRANSISTOR	2SC1740S
	Q133-135	TRANSISTOR	2SA933S
	Q136, 137	TRANSISTOR	2SC1740S
	Q138	TRANSISTOR	2SA933S
	Q139-141	TRANSISTOR	2SC1740S
	Q142	TRANSISTOR	2SA933S
	Q143, 144	TRANSISTOR	2SC1740S
	Q145	TRANSISTOR	2SA933S
	Q146	TRANSISTOR	2SC1845
	Q147	TRANSISTOR	2SA933S
	Q148	TRANSISTOR	2SC1740S
	Q149	TRANSISTOR	2SD1276A
	Q150	TRANSISTOR	2SB950A
	Q151-155	TRANSISTOR	2SC1740S
	Q156-158	TRANSISTOR	2SA933S
	Q159	TRANSISTOR	2SC1740S
	Q160	TRANSISTOR	2SA933S
	Q161	TRANSISTOR	2SC1740S
	Q162	TRANSISTOR	2SA933S
	Q163-166	N-FET	2SK246
	Q167-169	TRANSISTOR	2SA933S
	Q170, 171	N-FET	2SK246
	Q173, 174	TRANSISTOR	2SA933S
	Q178, 180	TRANSISTOR	2SA933S
	Q182-186	TRANSISTOR	2SA933S
	Q187-189	TRANSISTOR	2SC1740S
	Q190	TRANSISTOR	2SA933S
	Q191, 192	TRANSISTOR	2SC1740S
	Q193	TRANSISTOR	2SA933S
	Q194	TRANSISTOR	2SC1740S
	Q230-232	TRANSISTOR	2SC1740S

Mark	NO	Description	Part NO.
	Q249, 250	TRANSISTOR	2SA933S
	Q251, 252	TRANSISTOR	2SC1740S
	Q253, 254	TRANSISTOR	2SC3327
	Q255	TRANSISTOR	2SA933S
	Q256	TRANSISTOR	2SC1740S
	D102-109	DIODE	1SS252
	D111-114	DIODE	1SS252
	D115	DIODE	11E2
	D116	DIODE	1SS252
	D118-131	DIODE	1SS252
	D132, 133	DIODE	OA90A
	D134	DIODE	1SS252
	D135, 136	DIODE	OA90A
	D137	DIODE	1SS252
	D138, 139	DIODE	OA90A
	D140	DIODE	1SS252
	D141-143	DIODE	11E2
	D144-146	DIODE	1SS252
	D150-152	DIODE	1SS252
	D153	ZENER DIODE	RD3. 6ESB2
	D154		1SS252
	D249, 250	DIODE	1SS252
	D251, 252	ZENER DIODE	RD6. 8ESB2
	D253-262	DIODE	1SS252
	D263	DIODE	11E2
	D273, 274	DIODE	1SS252

COILS

Mark	NO	Description	Part NO.
	L101	AXIAL INDUCTOR	LAU150K
	L102	AXIAL INDUCTOR	LAU820K
	L103	AXIAL INDUCTOR	LAU100K
	L104	AXIAL INDUCTOR	LAU4R7K
	L105, 106	AXIAL INDUCTOR	LAU150K
	L107	AXIAL INDUCTOR	LAU680K
	L108	COIL	ATG1006
	L110	AXIAL INDUCTOR	LAU3R9K
	L111	AXIAL INDUCTOR	LAU1R8M
	L112	AXIAL INDUCTOR	LAU3R9K
	L113	AXIAL INDUCTOR	LAU1R8M
	L114	AXIAL INDUCTOR	LAU680K
	L116-118	AXIAL INDUCTOR	LAU4R7K
	L251, 252	COIL (1μH)	ATH-133

CAPACITORS

Mark	NO	Description	Part NO.
	C102	ELECTR. CAPACITOR	CEANPR22M50
	C103	CERAMIC CAPACITOR	CKCYB103K50
	C104	ELECTR. CAPACITOR	CEAS100M50
	C105	CERAMIC CAPACITOR	CCCSL820J50
	C106	CERAMIC CAPACITOR	CKCYB102K50
	C107	ELECTR. CAPACITOR	CEAS010M50
	C109	CERAMIC CAPACITOR	CCCCH151J50
	C110	CERAMIC CAPACITOR	CCDUJ220J50
	C111	ELECTR. CAPACITOR	CEAS100M50
	C112	ELECTR. CAPACITOR	CEAS470M16
	C113	CERAMIC CAPACITOR	CCCCH151J50
	C115	CERAMIC CAPACITOR	CCDSL390J50
	C116	ELECTR. CAPACITOR	CEAS101M10
	C118	ELECTR. CAPACITOR	CEANP010M50
	C119	ELECTR. CAPACITOR	CEAS100M50

Mark	NO	Description	Part NO.
	C120	CERAMIC CAPACITOR	CCCSL470J50
	C121	CERAMIC CAPACITOR	CCCSL390J50
	C122	CERAMIC CAPACITOR	CCCSL220J50
	C123	ELECTR. CAPACITOR	CEAS010M50
	C124	MYLOR FILM CAPACITOR	CQMA223J50
	C125	ELECTR. CAPACITOR	CEAS101M10
	C126	CERAMIC CAPACITOR	CCCSL151J50
	C127	CERAMIC CAPACITOR	CKCYB102K50
	C128	CERAMIC CAPACITOR	CCCSL151J50
	C129	MYLOR FILM CAPACITOR	CQMA103J50
	C130, 131	ELECTR. CAPACITOR	CEAS330M16
	C132	ELECTROLYTIC CAPACIT	CEANP100M16
	C134	CERAMIC CAPACITOR	CKCYB103K50
	C135	ELECTR. CAPACITOR	CEAS010M50
	C136	MYLOR FILM CAPACITOR	CQMA183J50
	C137	CERAMIC CAPACITOR	CKDYF473Z50
	C139	CERAMIC CAPACITOR	CKDYX104M25
	C140	CERAMIC CAPACITOR	CCCSL121J50
	C141	CERAMIC CAPACITOR	CKCYB103K50
	C142	ELECTR. CAPACITOR	CEAS100M50
	C143	CERAMIC CAPACITOR	CKCYB391K50
	C144	MYLOR FILM CAPACITOR	CQMA182J50
	C145	MYLOR FILM CAPACITOR	CQMA683J50
	C146	ELECTR. CAPACITOR	CEAS330M16
	C147	CERAMIC CAPACITOR	CKCYF473Z50
	C148	ELECTR. CAPACITOR	CEAS102M16
	C149	CERAMIC CAPACITOR	CKCYB391K50
	C150, 151	CERAMIC CAPACITOR	CKDYF473Z50
	C152	CERAMIC CAPACITOR	CKCYB103K50
	C153	ELECTROLYTIC CAPACIT	CEAS471M35
	C154	CERAMIC CAPACITOR	CKDYF473Z50
	C155	ELECTR. CAPACITOR	CEAS101M16
	C156, 157	ELECTR. CAPACITOR	CEAS330M16
	C158	CERAMIC CAPACITOR	CKDYB561K50
	C159	CERAMIC CAPACITOR	CKCYB103K50
	C160	CERAMIC CAPACITOR	CKDYF103Z50
	C161	ELECTR. CAPACITOR	CEAS220M16
	C162	CERAMIC CAPACITOR	CKDYF473Z50
	C163	CERAMIC CAPACITOR	CCDSL101J50
	C164	CERAMIC CAPACITOR	CCCSL271J50
	C165	ELECTR. CAPACITOR	CEAS101M10
	C166	CERAMIC CAPACITOR	CCDSL101J50
	C167	ELECTR. CAPACITOR	CEAS010M50
	C168	CERAMIC CAPACITOR	CCCSL271J50
	C169	ELECTR. CAPACITOR	CEAS010M50
	C170	TANTALUM (2.2μ/16V)	ACH1131
	C171	ELECTR. CAPACITOR	CEAS330M16
	C172	ELECTR. CAPACITOR	CEAS010M50
	C173	MYLOR FILM CAPACITOR	CQMA123J50
	C174, 175	ELECTR. CAPACITOR	CEAS330M16
	C176	ELECTR. CAPACITOR	CEAS010M50
	C177	CERAMIC CAPACITOR	CKCYF473Z50
	C178	CERAMIC CAPACITOR	CCCSL180J50
	C179	CERAMIC CAPACITOR	CCCSL101J50
	C180	ELECTR. CAPACITOR	CEASR47M50

Mark	NO	Description	Part NO.
	C181	CERAMIC CAPACITOR	CKDYF473Z50
	C182	ELECTR. CAPACITOR	CEAS470M16
	C183	CERAMIC CAPACITOR	CKDYF103Z50
	C184	ELECTR. CAPACITOR	CEAS2R2M50
	C185	CERAMIC CAPACITOR	CKCYF473Z50
	C186	MYLOR FILM CAPACITOR	CQMA333J50
	C187	ELECTR. CAPACITOR	CEANP2R2M50
	C188	ELECTR. CAPACITOR	CEAS4R7M50
	C189	CERAMIC CAPACITOR	CKCYB103K50
	C190	ELECTR. CAPACITOR	CEAS101M16
	C191	MYLOR FILM CAPACITOR	CQMA473J50
	C192	ELECTR. (0.82μ/50V)	ACH-388
	C193	CERAMIC CAPACITOR	CKDYF473Z50
	C194	ELECTR. CAPACITOR	CEAS471M10
	C195	CERAMIC CAPACITOR	CKDYF473Z50
	C196	ELECTR. CAPACITOR	CEAS330M16
	C197	CERAMIC CAPACITOR	CCCCH100D50
	C198	ELECTR. CAPACITOR	CEAS101M10
	C199	MYLOR FILM CAPACITOR	CQMA223J50
	C200	ELECTR. CAPACITOR	CEAS100M50
	C201	CERAMIC CAPACITOR	CCDCH221J50
	C202	ELECTR. CAPACITOR	CEAS010M50
	C203	CERAMIC CAPACITOR	CCCSL390J50
	C204	ELECTR. CAPACITOR	CEAS010M50
	C205	CERAMIC CAPACITOR	CCCSL680J50
	C206	ELECTR. CAPACITOR	CEAS010M50
	C208, 209	ELECTR. CAPACITOR	CEAS222M16
	C210	CERAMIC CAPACITOR	CKCYF473Z50
	C211	ELECTR. CAPACITOR	CEAS221M16
	C212	ELECTR. CAPACITOR	CEAS101M16
	C214, 215	CERAMIC CAPACITOR	CCCSL470J50
	C216	ELECTR. CAPACITOR	CEANP010M50
	C217	CERAMIC CAPACITOR	CCCSL470J50
	C218, 219	ELECTR. CAPACITOR	CEANP010M50
	C220	ELECTR. CAPACITOR	CEAS100M50
	C221	CERAMIC CAPACITOR	CCCSL101J50
	C222	CERAMIC CAPACITOR	CCCSL221J50
	C223, 224	CERAMIC CAPACITOR	CKCYB391K50
	C225	CERAMIC CAPACITOR	CCCSL121J50
	C226	CERAMIC CAPACITOR	CKCYB561K50
	C227	CERAMIC CAPACITOR	CKCYB331K50
	C229-231	CERAMIC CAPACITOR	CCCSL151J50
	C232	ELECTR. CAPACITOR	CEAS101M16
	C233, 235	ELECTR. CAPACITOR	CEAS330M16
	C240	ELECTR. CAPACITOR	CEAS3R3M50
	C242, 243	ELECTR. CAPACITOR	CEAS331M16
	C244, 245	CERAMIC CAPACITOR	CCDUJ331J50
	C255	ELECTR. CAPACITOR	CEAS220M25
	C256	ELECTR. CAPACITOR	CEANP2R2M50
	C257	ELECTR. CAPACITOR	CEAS100M50
	C258	CERAMIC CAPACITOR	CCDSL221J50
	C259, 260	ELECTR. CAPACITOR	CEAS100M50
	C261, 262	AUDIO FILM CAPACITOR	CFTXA154J50
	C263, 264	CERAMIC CAPACITOR	CKCYB562K50
	C265, 266	AUDIO FILM CAPACITOR	CFTXA124J50

Mark	NO	Description	Part NO.
	C267	ELECTR. CAPACITOR	CEAS100M50
	C268	ELECTR. CAPACITOR	CEAS470M10
	C269, 270	ELECTR. CAPACITOR	CEAS100M50
	C271	CERAMIC CAPACITOR	CKDYF103Z50
	C272	ELECTR. CAPACITOR	CEAS470M10
	C273, 274	CERAMIC CAPACITOR	CKMYB561K50
	C275, 276	ELECTR. CAPACITOR	CEAS2R2M50
	C277, 278	ELECTR. CAPACITOR	CEAS330M25
	C279	CERAMIC CAPACITOR	CKDYF473Z50
	C280	ELECTR. CAPACITOR	CEAS470M50
	C281	CERAMIC CAPACITOR	CKDYF473Z50
	C282	AUDIO FILM CAPACITOR	CFTXA124J50
	C283	CERAMIC CAPACITOR	CKDYF473Z50
	C284	ELECTR. CAPACITOR	CEAS471M50
	C285	AUDIO FILM CAPACITOR	CFTXA124J50
	C286, 287	ELECTR. CAPACITOR	CEAS222M35
	C288, 289	ELECTR. CAPACITOR	CEAS010M50
	C291	ELECTR. CAPACITOR	CEAS470M10
	C292	ELECTR. CAPACITOR	CEAS222M16
	C297	CERAMIC CAPACITOR	CKDYF473Z50
	C300, 301	ELECTROLYTIC(3.3μ/63V)	ACH1127
	C302	ELECTR. CAPACITOR	CEAS470M10
	C303	ELECTR. CAPACITOR	CEAS010M50
	C304	CERAMIC CAPACITOR	CKDYF473Z50
	C305, 306	ELECTR. CAPACITOR	CEAS2R2M50
	C309	ELECTR. CAPACITOR	CEAS470M50

RESISTORS

	VR101	VR (1kΩ)	ACP1022
	VR102	VR (2.2kΩ)	ACP1023
	VR103, 104	VR (100Ω)	ACP1031
	VR105	VR (220Ω)	ACP1021
	R236, 245	METAL OXIDE RESISTOR	RS2LMF□□□J
	R268, 269	METAL OXIDE RESISTOR	RS2LMF010J
	R292	CARBON FILM RESISTOR	RD1/4PMFL223J
	R334	METAL OXIDE RESISTOR	RS2LMF010J
	R434	CARBONFILM RESISTOR	RD1/2PM271J
	R437, 438	CARBONFILM RESISTOR	RD1/2PM271J
	R444-446	CARBONFILM RESISTOR	RD1/2PM101J
	R464	CARBON FILM RESISTOR	RD1/4PMFL470J
	R467	CARBONFILM RESISTOR	RD1/2PMFL3R9J
	R701, 702	CARBONFILM RESISTOR	RD1/4PMFL2R2J
	R773, 774	CARBONFILM RESISTOR	RD1/2PM152J
	R795-797	CARBONFILM RESISTOR	RD1/4PMFL□□□J
	Other resistors		RD1/8PM□□□J

OTHERS

	DL101	GLASS DELAY LINE	ATN1011
	DL109	DELAY LINE	ATN1013
	DL115	DELAY LINE	ATN1014
	X101	CRYSTAL RESONATOR (3.579545MHz)	ASS-028
	X102	CERAMIC RESONATOR (15.734kHz)	ASS1033

SP TERMINAL Assembly (AWZ2962)

SWITCH

Mark	NO	Description	Part NO.
	S251	SLIDE SWITCH (SPEAKER SELECTOR)	ASH1001

RESISTORS

Mark	NO	Description	Part NO.
	R783-786	CARBONFILM RESISTOR	RD1/8PM□□□J

OTHERS

Mark	NO	Description	Part NO.
		PHONO JACK 2-P	AKB1126
		SPEAKER TERMINAL 4-P	AKE1021

CONVERGENCE Assembly (AWZ2963)

SEMICONDUCTORS

Mark	NO	Description	Part NO.
	IC701		PA0036
	IC702		UPC78L12J
	IC703		NJM79L15A
	IC704-706		M5238LF
	IC751		STK4277-SL
	Q751	TRANSISTOR	2SD1277A
	Q752	TRANSISTOR	2SB951A
	Q753, 754	TRANSISTOR	2SC1740S
	Q755	TRANSISTOR	2SA933S
	D701	ZENER DIODE	RD8. 2ESB2
	D702-704	DIODE	1SS252
	D705	ZENER DIODE	RD5. 1ESB
	D706	DIODE	1SS252
	D707	ZENER DIODE	HZS12BL
	D708	ZENER DIODE	RD5. 1ESB
	D709-723	ZENER DIODE	UZ-27BSB
	D751, 752	DIODE	11DF1FD
	D753, 754	DIODE	1SS252

CAPACITORS

Mark	NO	Description	Part NO.
	C801	ELECTR. CAPACITOR	CEASR33M50
	C802	ELECTR. CAPACITOR	CEAS010M50
	C803	CERAMIC CAPACITOR	CKDYF473Z50
	C804	ELECTR. CAPACITOR	CEASR33M50
	C805	ELECTR. CAPACITOR	CEAS010M50
	C806	PL. STYRENE CAPACITOR	CQSA152J50
	C807	ELECTR. CAPACITOR	CEAS010M50
	C808	MYLOR FILM CAPACITOR	CQMA681J50
	C809	PL. STYRENE CAPACITOR	CQSA102J50
	C810	ELECTR. CAPACITOR	CEAS100M50
	C811	MYLOR FILM CAPACITOR	CQMA224J50
	C812	CERAMIC CAPACITOR	CKDYF473Z50
	C813	ELECTROLYTIC CAPACIT	CEAS102M6
	C814	CERAMIC CAPACITOR	CKDYF473Z50
	C815	ELECTROLYTIC CAPACIT	CEAS102M6
	C816	MYLOR FILM CAPACITOR	CQMA224J50
	C817	MYLOR FILM CAPACITOR	CQMA332J50
	C818	MYLOR FILM CAPACITOR	CQMA681J50
	C819	ELECTR. CAPACITOR	CEAS2R2M50
	C820	MYLOR FILM CAPACITOR	CQMA471J50
	C821	ELECTR. CAPACITOR	CEAS2R2M50
	C822	ELECTR. CAPACITOR	CEANP010M50
	C823-826	ELECTR. CAPACITOR	CEAS100M50
	C827, 828	ELECTR. CAPACITOR	CEAS221M10
	C829	CERAMIC CAPACITOR	CCMSL470J50
	C830-832	CERAMIC CAPACITOR	CKDYF473Z50
	C833, 834	ELECTR. CAPACITOR	CEAS221M10
	C835	CERAMIC CAPACITOR	CCMSL470J50
	C836-838	CERAMIC CAPACITOR	CKDYF473Z50
	C839, 840	ELECTR. CAPACITOR	CEAS221M10
	C841	CERAMIC CAPACITOR	CCMSL470J50
	C842	ELECTR. CAPACITOR	CEAS101M16
	C843, 844	ELECTR. CAPACITOR	CEAS221M10
	C845	CERAMIC CAPACITOR	CCMSL470J50
	C846-848	CERAMIC CAPACITOR	CKDYF473Z50
	C849, 850	ELECTR. CAPACITOR	CEAS221M10
	C851	CERAMIC CAPACITOR	CCMSL470J50
	C852	ELECTR. CAPACITOR	CEAS101M16
	C853-856	CERAMIC CAPACITOR	CCMSL470J50
	C857	CERAMIC CAPACITOR	CKDYX103M25
	C883, 884	ELECTROLYTIC CAPACIT	CEHAQ471M35
	C885, 886	CERAMIC CAPACITOR	CKDYF473Z50
	C887	ELECTROLYTIC CAPACIT	CEHAQ330M35
	C888	CERAMIC CAPACITOR	CCDCH820J50
	C889	CERAMIC CAPACITOR	CCDCH680J50
	C890, 891	ELECTROLYTIC CAPACIT	CEHAQ471M35
	C892, 893	ELECTR. CAPACITOR	CEHAQ221M35
	C894, 895	CERAMIC CAPACITOR	CKDYF473Z50

RESISTORS

Mark	NO	Description	Part NO.
	VR701	VR(10K)	ACP1025
	VR702, 703	VR(47K)	ACP1027
	VR704	VR(220k)	ACP1029
	VR705-707	VR(4. 7K)	ACP1024
	VR708	VR(22k)	ACP1026
	VR709-740	VR(4. 7K)	ACP1024
⚠	R101, 102	METAL OXIDE RESISTOR	RS3LMF221J
⚠	R452, 453	CEMENT RESISTOR	ACN1059
	R457, 458	CARBON FILM RESISTOR	RD1/4PM222J
	R462	CARBON FILM RESISTOR	RD1/2PM222J
⚠	R475-479	METAL OXIDE RESISTOR	RS2LMF6R8J
⚠	R480, 481	CARBON FILM RESISTOR	RD1/4PMFL□□□J
⚠	R482, 484	CEMENT (100, 7W)	RT7PH101K
⚠	R483, 485	RESISTOR(68, 7W)	RT7PH680K
	R487, 488	CARBON FILM RESISTOR	RD1/4PM102J
		Other resistors	RD1/8PM□□□J

SUB DEFLECTION Assembly (AWZ2965)

SEMICONDUCTORS

Mark	NO	Description	Part NO.
	IC591, 592		NJM4558DXP
	Q591, 592	TRANSISTOR	2SC2705
	Q593	TRANSISTOR	2SC1740S
	D591, 592	DIODE	1SS252
	D593	ZENER DIODE	RD5. 1ESB
	D594	DIODE	1SS252

CAPACITORS

Mark	NO	Description	Part NO.
	C651	CERAMIC CAPACITOR	CKDYF473Z50
	C652, 653	ELECTR. CAPACITOR	CEAS010M50
	C654	CERAMIC CAPACITOR	CKCYB472K50
	C655	CERAMIC CAPACITOR	CCDSL101K500
	C656	CERAMIC CAPACITOR	CKDYF473Z50
	C661	CERAMIC CAPACITOR	CKCYB222K50
	C662, 663	MYLOR FILM CAPACITOR	CQMA102J50
	C664	CERAMIC CAPACITOR	CCDSL101K500
	C665	CERAMIC CAPACITOR	CKDYF473Z50
	C666	CERAMIC CAPACITOR	CKCYF103Z50
	C667	ELECTR. CAPACITOR	CEAS100M25

RESISTORS

Mark	NO	Description	Part NO.
×	R722-724	METALFILM RESISTER	
	R727, 728	CARBON FILM RESISTOR	RD1/2PM□□□J
	Other resistors		RD1/8PM□□□J

FRONT CONTROL Assembly (AWZ2966)

SEMICONDUCTORS

Mark	NO	Description	Part NO.
	IC861		PD5136
	Q861	TRANSISTOR	2SC1740S
	D861	LED (GREEN)	AEL-459
	D862	ZENER DIODE	RD3.0ESB
	D863, 864	DIODE	1SS252

SWITCHES

Mark	NO	Description	Part NO.
	S861-865, 867-876	SWITCH (POWER, PINP (ON/OFF, INPUT), PRESET MENU (ON/OFF, SELECT/ ADJUST +, -, SET), STD/AV MEM, CHANNEL (+, -), DPO, VOLUME (+, -), INPUT SELECTOR, FACTORY ADJ)	ASG1034

CAPACITORS

Mark	NO	Description	Part NO.
	C951	ELECTROLYTIC CAPACIT	CEJA330M16
	C952, 953	CERAMIC CAPACITOR	CCDCH221J50
	C954	AUDIO FILM CAPACITOR	CFTXA104J50
	C955	CERAMIC CAPACITOR	CKDYF103Z50
	C956	ELECTR. CAPACITOR	CEJA2R2M50
	C957	CERAMIC CAPACITOR	CKDYB472K50
	C961	CERAMIC CAPACITOR	CCDSL121J50
	C962	ELECTR. CAPACITOR	CEJA101M6

RESISTORS

Mark	NO	Description	Part NO.
	VR861	VR (47K)	ACP1027
	Other resistors		RD1/8PM□□□J

OTHERS

Mark	NO	Description	Part NO.
	X861	CERAMIC RESONATOR (480kHz)	ASS1043
	PC861	Cds	SC-05-8S
	REMOTE SENSOR UNIT		AXX1010

☆POWER SUPPLY・DEFLECTION Assembly (AWV1146)

SEMICONDUCTORS

Mark	NO	Description	Part NO.
	IC651, 652	PHOTOCOUPLER	ON3161-Q
×	Q551, 552	TRANSISTOR	
	Q561	TRANSISTOR	2SC3332
	Q562	TRANSISTOR	2SD1276A
⚠	Q563	TRANSISTOR	2SD1911
	Q571	TRANSISTOR	2SC3332
	Q572	TRANSISTOR	2SD1276A
⚠	Q573	TRANSISTOR	2SD1911
	Q651-653	TRANSISTOR	2SA933S
	Q654-657	TRANSISTOR	2SC1740S
	Q658	TRANSISTOR	2SC3451
	Q659	TRANSISTOR	2SB824
	Q660	TRANSISTOR	2SC1740S
	Q661	TRANSISTOR	2SC2705
	Q662	TRANSISTOR	2SA933S
	Q663	TRANSISTOR	2SD1275
	Q664	TRANSISTOR	2SA933S
	Q665	TRANSISTOR	2SD1275
	Q666	TRANSISTOR	2SC1740S
×	D551, 552	ZENER DIODE	
	D553, 561	DIODE	1SS252
⚠	D562	DIODE	11E2
	D563, 571	DIODE	1SS252
⚠	D572	DIODE	11DF2FD
×	D573	DIODE	
⚠	D574, 575	DIODE	ES1F
	D651, 652	DIODE	1SS145
	D653	ZENER DIODE	HZS6B1L
	D654, 655	DIODE	1SS145
	D656	ZENER DIODE	HZS6B1L
	D657	DIODE	RB604
	D658-660	DIODE	1SS252
	D662-665	DIODE	1SS252
	D667-669	DIODE	1SS252
	D670, 671	DIODE	11DF1FD
	D672	DIODE	1SS252
	D673	DIODE	11DF1FD
	D674-676	DIODE	1SS252
	D677	ZENER DIODE	HZS6C2L
	D678	DIODE	1SS252
	D679	DIODE	RL2Z
	D680	DIODE	RL4Z
	D681	DIODE	RG4A
	D682-685	DIODE	RL4Z
	D686	ZENER DIODE	HZS6A1L
	D687	ZENER DIODE	HZS6B1L
	D688	ZENER DIODE	HZS18-1L
	D689	ZENER DIODE	HZS6B1L
	D690	ZENER DIODE	RD39ESB4

RELAYS

Mark	NO	Description	Part NO.
	RY651	RELAY	ASR-512
	RY652	RELAY	ASR1027

COILS AND TRANSFORMERS

Mark	NO	Description	Part NO.
	L551	INDUCTOR	LTA272J
	L552	COIL	ATL1053
	L553	COIL	ATL1058
	L554	COIL	ATL1057
	L555	FERRITE BEAD	ATX-028
	L651	LINE FILTER	ATF1031
	L652	COIL	ATH1009
	L653	LINE FILTER	ATF-207
	L654-665	FERRITE BEAD	ATX-028
	L666	COIL	ATH-133
	L667, 668	FERRITE BEAD	ATX-028
⚠	T551, 552	H. DRIVE TRANSFORMER	ATK1045
⚠×	T553	CONVERTER TRANS	
	T651	POWER TRANSFORMER	ATT1120
⚠	T652	CONVERTER TRANS	ATK1049

CAPACITORS

Mark	NO	Description	Part NO.
	C601	ELECTROLYTIC CAPACIT	CEHAQ221M16
	C602	ELECTR. CAPACITOR	CEAS470M16
	C603	CERAMIC CAPACITOR	CKDYF103Z50
	C604	ELECTR. CAPACITOR	CEAS470M16
	C605	ELECTR. CAPACITOR	CEAS101M16
	C606	ELE. CAP. (33μ/160V)	ACH-370
	C611	ELECTROLYTIC CAPACIT	CEHAQ010M2C
	C612	CERAMIC CAPACITOR	CKDYB102K500
	C613	ELECTR. CAPACITOR	CEHAQ010M50
	C614	CERAMIC CAPACITOR	CCDSL101K500
⚠	C615	ELE. CAP. (1μ/160V)	ACH-372
	C616	CER. CAP. (680P/2KV)	ACG1024
	C617	P. P. CAPACITOR	CQPA683J400
	C618	(0.012μ/1. 2kV)	CFPHW123H3D
⚠	C619	MPP CAPACITOR(0.82μ/200V)	ACE1044
	C620	CERAMIC CAPACITOR	CCDSL181K500
	C621	M. P. P. (0.01μ/800V)	CFPHW103H3A
	C622	CERAMIC CAPACITOR	CKDYF473Z50
	C631	ELECTROLYTIC (1μ/160V)	CEHAQ010M2C
	C632	CERAMIC CAPACITOR	CCDSL101K500
	C633	CERAMIC CAPACITOR	CKDYB472K500
	C634	ELECTR. CAPACITOR	CEHAQ010M50
	C635	ELE. CAP. (10μ/160V)	ACH1117
	C636	ELECTR. CAPACITOR	CEHAQ100M50
	C637	ELECTROLYTIC CAPACIT	CEHAQ220M2C
	C638	CER. CAP. (680P/2KV)	ACG1024
	C639		CFPHW123H3D
	C640	CERAMIC CAPACITOR	CKDYF473Z50
	C641	ELECTROLYTIC CAPACIT	CEHAQ220M50
	C701, 702	FLM CAP. (0.1μ/250V)	ACE-507
	C703	ELECTR. CAPACITOR	CEAS102M25
	C704	CERAMIC CAPACITOR	CKCYF103Z50
	C705, 706	CER CAP(0.01μ/AC250V)	ACG-001
	C707	ELECTR. CAPACITOR	CEAS470M25
	C708	ELECTR. CAPACITOR	CEAS010M50
	C709	ELECTR. CAPACITOR	CEAS470M25
	C710, 711	CER CAP(0.01μ/AC250V)	ACG-001
	C712	ELECTR. CAPACITOR	CEAS100M50
	C713	CER. CAP. (1000P/2KV)	ACG-040
	C714	CERAMIC CAPACITOR	CCCSL151J50
	C715	ELECTR. CAPACITOR	CEAS101M16
	C716	ELECTR. CAPACITOR	CEAS470M25
	C717, 718	FLM CAP. (6800P/250V)	ACE1009
	C719	ELECTR. (470μ/200V)	ACH1147
	C720, 721	FLM CAP. (6800P/250V)	ACE1009
	C722	ELECTR. (820μ/200V)	ACH1148
	C723	CER. CAP. (1000P/2KV)	ACG-040
	C724	AUDIO FILM CAPACITOR	CFTXA224J50
	C725	ELECTR. (4.7μ/250V)	ACH-378
	C726	AUDIO FILM CAPACITOR	CFTXA474J50
	C727	CERAMIC CAPACITOR	CCDSL221K500
	C728	ELECTR. (47μ/100V)	ACH1132
	C729	CERAMIC CAPACITOR	CCDSL221K500
	C730	CERAMIC CAPACITOR	CKCYF103Z50
	C731	MYLOR FILM CAPACITOR	CQMA822J50
	C732	ELECTR. CAPACITOR	CEAS010M50
	C733	CER. CAP. (3300p/2kV)	ACG1008
	C734	CERAMIC CAPACITOR	CCDSL221K500
	C735	ELECTROLYTIC CAPACIT	CEHAQ471M16
	C736	CERAMIC CAPACITOR	CCDSL221K500
	C737	CCA (100P/2KV)	ACG-032
	C738, 739	CERAMIC CAPACITOR	CCDSL221K500
	C740	ELECTR. CAPACITOR	CEHAQ222M50
	C741	ELECTR. (560μ/160V)	ACH1146
	C742	ELECTR. CAPACITOR	CEHAQ222M35
	C743	ELECTROLYTIC CAPACIT	CEHAQ332M35
	C744	CERAMIC CAPACITOR	CKDYF103Z500
	C745	CERAMIC CAPACITOR	CKCYF473Z50
	C746, 747	CERAMIC CAPACITOR	CCDSL221K500
	C748	CERAMIC CAPACITOR	CKCYF473Z50
	C749	CERAMIC CAPACITOR	CKDYF103Z500
	C750	ELECTR. CAPACITOR	CEAS331M35
	C751, 752	ELECTR. CAPACITOR	CEHAQ222M35
	C753	CERAMIC CAPACITOR	CKCYF473Z50
	C754, 755	ELECTR. CAPACITOR	CEAS100M50
	C756	CERAMIC CAPACITOR	CKCYB681K50
	C757	ELECTR. CAPACITOR	CEAS010M50
	C758	ELECTR. CAPACITOR	CEAS100M50
	C759	ELECTR. CAPACITOR	CEAS221M16
	C760	CERAMIC CAPACITOR	CKCYF473Z50
	C761	ELECTR. CAPACITOR	CEAS010M50

RESISTORS

Mark	NO	Description	Part NO.
×	VR591	VR	
	VR592	VR (2.2k)	ACP1023
×	VR593	VR	
	VR651	VR (1k)	VRTS6VS102
×	R101	CARBON FILM RESISTOR	
×	R102		
×	R103		
⚠	R104	CARBON FILM RESISTOR	RD1/4PMFL3R9J
×	R105		
×	R107		
×	R108		
×	R109		
×	R110		
×	R111		
⚠	R113	CARBON FILM RESISTOR	RD1/4PMFL470J

Mark	NO	Description	Part NO.
⚠	R114	CARBON FILM RESISTOR	RD1/4PMFL3R9J
	R121	CARBON FILM RESISTOR	RD1/2PMFL103J
⚠	R125	CARBON FILM RESISTOR	RD1/2PMFL102J
	R126, 127	CARBON FILM RESISTOR	RD1/2PM□□□J
	R128, 129	CARBON FILM RESISTOR	RD1/4PMFL□□□J
	R130	METAL OXIDE RESISTOR	RS2PMF3R3J
	R131	CARBONFILM RESISTOR	RD1/2PM152J
	R132	METAL OXIDE RESISTOR	RS2PMF220J
	R134	RESISTOR(100K, 1/2W)	ACN1074
	R151	METAL OXIDE RESISTOR	RS3PMF512J
	R152	CARBON FILM RESISTOR	RD1/2PMFL152J
	R153	CARBON FILM RESISTOR	RD1/4PMFL471J
×	R154		
	R155	METAL OXIDE RESISTOR	RS2PMF010J
	R158	CARBON FILM RESISTOR	RD1/2PM222J
⚠	R159	CARBONFILM RESISTOR	RD1/4PMFL100J
×	R160		
×	R161		
	R162	METAL OXIDE RESISTOR	RS2PMF220J
⚠	R163	CARBONFILM RESISTOR	RD1/4PMFL2R2J
	R164, 165	METALFILM RESISTER	RN1/2PC□□□□F
	R167	CARBON FILM RESISTOR	RD1/2PMF122J
	R168	RESISTOR(47, 1/2W)	ACN-225
×	R169		
	R170, 171	RESISTOR(100K, 1/2W)	ACN1074
	R252	RESISTOR(2.2M, 1/2W)	ACN-208
	R266	METALFILM RESISTER	RN1/4PC1603F
	R269, 275	RESISTOR (1.0, 5W)	ACN1032
	R278	METAL OXIDE RESISTOR	RS1LMF473J
	R279	RESISTOR(2.2M, 1/2W)	ACN-208
	R280, 281	METAL OXIDE RESISTOR	RS3LMFR47J
	R282	RESISTOR (3.3, 5W)	ACN1050
	R284, 285	CARBON FILM RESISTOR	RD1/4PMFL□□□J
	R286	METAL OXIDE RESISTOR	RS3LMF2R2J
	R287	RESISTOR (3.3, 5W)	ACN1050
	R288	METAL OXIDE RESISTOR	RS3LMF2R2J
	R289, 291	CARBONFILM RESISTOR	RD1/2PM241J
	R293	CARBONFILM RESISTOR	RD1/2PM101J
	R294	METALFILM RESISTER	RN1/4PC3601F
	R296, 298	METALFILM RESISTER	RN1/4PC1603F
	R303	METAL OXIDE RESISTOR	RS2LMF223J
	R305, 306	CEMENT (18, 10W)	ACN1057
	R307	METAL OXIDE RESISTOR	RS1LMF272J
	R308	METAL OXIDE RESISTOR	RS2LMF010J
	R321, 322	METALFILM RESISTER	RN1/4PC□□□□F
	R323	METAL OXIDE RESISTOR	RS1LMF153J
		Other resistors	RD1/8PM□□□J

OTHERS

Mark	NO	Description	Part NO.
		SHIELD COVER	ANH1166

AV I/O-2P・TUNER Assembly (AWZ2972)

SEMICONDUCTORS

Mark	NO	Description	Part NO.
	IC351	AV SELECTOR IC	PA0044
	IC501		M51365SP
	IC502		NJM78M09A
	IC503	US MPX DECODER IC	CXA1124AS
	IC504		TD6359P
	Q353, 355	TRANSISTOR	2SA933S
	Q356	TRANSISTOR	2SC1740S
	Q357	TRANSISTOR	2SA933S
	Q358	TRANSISTOR	2SC1740S
	Q364	TRANSISTOR	2SA933S
	Q371	TRANSISTOR	2SC1740S
	Q372	TRANSISTOR	2SA933S
	Q373, 501	TRANSISTOR	2SC1740S
	Q502	TRANSISTOR	2SA933S
	Q503	TRANSISTOR	2SC1740S
	Q504	TRANSISTOR	2SA933S
	Q505	TRANSISTOR	2SC2878
	Q506-510	TRANSISTOR	2SC1740S
	Q511	TRANSISTOR	2SA933S
	Q512	TRANSISTOR	RN2203
	Q513	TRANSISTOR	2SC1740S
	Q514, 515	TRANSISTOR	2SC2786
	Q516	TRANSISTOR	RN1201
	Q517	TRANSISTOR	RN1203
	Q518	TRANSISTOR	2SC1740S
	Q519	TRANSISTOR	2SC1740SLN
	Q520-522	TRANSISTOR	2SA933S
	Q525, 526	TRANSISTOR	2SC1740S
	Q527	TRANSISTOR	2SD880
	Q528	TRANSISTOR	2SC1740S
	D352, 353	DIODE	1SS252
	D501, 506	DIODE	1SS252
	D507	ZENER DIODE	RD5.6ESB2
	D508	ZENER DIODE	RD30ESB2
	D509	DIODE	1SS252

COILS AND FILTERS

Mark	NO	Description	Part NO.
	L501	FM DETECTION COIL	ATE-067
	L502, 503	AXIAL INDUCTOR	LAU2R2M
	L504	COIL	ATC-249
	L505	AXIAL INDUCTOR	LAU2R2M
	L506	COIL	ATC-226
	L507	AXIAL INDUCTOR	LAU120K
	L508	AXIAL INDUCTOR	LAUR47M
	L509	AXIAL INDUCTOR	LAU1R2M
	L510, 511	COIL	ATC-226
	L512		LAUR22M
	L513, 514	AXIAL INDUCTOR	LAU2R2M
	L515	COIL	ATC-254
	F501	CERAMIC FILTER	ATF-166
	F502	CERAMIC TRAP	ATF-114
	F503	SAW FILTER	ATF1019
	F504	SAW FILTER	ATF1046

CAPACITORS

Mark	NO	Description	Part NO.
	C351	ELECTR. CAPACITOR	CEAS102M10
	C353-356	ELECTR. CAPACITOR	CEAS010M50
	C359, 360	ELECTR. CAPACITOR	CEAS2R2M50
	C361, 362	CERAMIC CAPACITOR	CKDYF103Z50
	C364, 365	ELECTR. CAPACITOR	CEJA220M10
	C367	ELECTR. CAPACITOR	CEAS101M16
	C368	ELECTR. CAPACITOR	CEJA220M10
	C369	ELECTROLYTIC CAPACIT	CEJA220M10
	C372	ELECTR. CAPACITOR	CEAS220M16
	C373	ELECTR. CAPACITOR	CEAS100M25
	C374, 376	ELECTR. CAPACITOR	CEAS010M50
	C379	ELECTR. CAPACITOR	CEAS332M16
	C380-383	CERAMIC CAPACITOR	CKDYF103Z50
	C387	ELECTR. CAPACITOR	CEAS220M16
	C491	AUDIO FILM CAPACITOR	CFTXA473J50
	C492	ELECTR. CAPACITOR	CEAS4R7M50
	C493	ELECTR. CAPACITOR	CEAS101M10
	C494	ELECTR. CAPACITOR	CEAS4R7M50
	C495	MYLOR FILM CAPACITOR	CQMA103J50
	C496	CERAMIC CAPACITOR	CKDYB102K50
	C497	ELECTR. CAPACITOR	CEAS4R7M50
	C498	ELECTR. CAPACITOR	CEAS2R2M50
	C499	ELECTR. CAPACITOR	CEAS470M16
	C500	CERAMIC CAPACITOR	CKDYF473Z50
	C501	CERAMIC CAPACITOR	CKDYB222K50
	C502	ELECTR. (3.3μ/50V)	ACH1128
	C503	MYLOR FILM CAPACITOR	CQMA563J50
	C504	CERAMIC CAPACITOR	CKDYB102K50
	C505	CERAMIC CAPACITOR	CKDYF473Z50
	C506	CERAMIC CAPACITOR	CKDYB222K50
	C507	ELECTR. CAPACITOR	CEAS331M16
	C508	ELECTR. CAPACITOR	CEAS010M50
	C509	ELECTR. CAPACITOR	CEAS2R2M50
	C510	ELECTR. (10μ/50V)	ACH1129
	C511	CERAMIC CAPACITOR	CKDYB392K50
	C512	CERAMIC CAPACITOR	CKDYB102K50
	C513	ELECTROLYTIC CAPACIT	CEANP4R7M50
	C514	CERAMIC CAPACITOR	CKDYF103Z50
	C515	CERAMIC CAPACITOR	CKDYF473Z50
	C517	CERAMIC CAPACITOR	CCMCH050C50
	C518	MYLOR FILM CAPACITOR	CQMA272J50
	C519	CERAMIC CAPACITOR	CKDYF473Z50
	C520	ELECTR. CAPACITOR	CEAS331M16
	C521	CERAMIC CAPACITOR	CKDYF103Z50
	C522	CERAMIC CAPACITOR	CKDYB102K50
	C523	ELECTR. CAPACITOR	CEAS010M50
	C524, 525	CERAMIC CAPACITOR	CKDYF103Z50
	C526	ELECTR. CAPACITOR	CEAS100M50
	C527, 528	ELECTR. CAPACITOR	CEAS470M16
	C529	CERAMIC CAPACITOR	CCDRH270J50
	C530	CERAMIC CAPACITOR	CKDYB102K50
	C531	ELECTR. CAPACITOR	CEAS470M16
	C532	ELECTR. CAPACITOR	CEASR47M50
	C533	ELECTR. CAPACITOR	CEAS101M10
	C534	CERAMIC CAPACITOR	CKDYF103Z50
	C535	ELECTR. CAPACITOR	CEAS2R2M50
	C536	ELECTR. CAPACITOR	CEANPR22M50
	C537	CERAMIC CAPACITOR	CCMCH150J50
	C538	CERAMIC CAPACITOR	CCDRH560J50
	C539	CERAMIC CAPACITOR	CCDSL820J50
	C540	CERAMIC CAPACITOR	CKDYF103Z50
	C541	ELECTR. CAPACITOR	CEAS4R7M50
	C542	ELECTR. CAPACITOR	CEAS101M10
	C543	CERAMIC CAPACITOR	CKDYB122K50
	C544	MYLOR FILM CAPACITOR	CQMA123J50
	C545	MYLOR FILM CAPACITOR	CQMA562K50
	C546	CERAMIC CAPACITOR	CKDYF103Z50
	C547	ELECTR. CAPACITOR	CEASR47M50
	C548	ELECTR. CAPACITOR	CEAS4R7M50
	C549	ELECTR. CAPACITOR	CEAS2R2M50
	C550	ELECTR. CAPACITOR	CEAS470M16
	C551, 552	CERAMIC CAPACITOR	CKDYB102K50
	C553	ELECTR. CAPACITOR	CEAS101M16
	C554	CERAMIC CAPACITOR	CKDYF103Z50
	C555	CERAMIC CAPACITOR	CKDYB102K50
	C556	ELECTR. CAPACITOR	CEAS4R7M50
	C557	CERAMIC CAPACITOR	CCMCH050C50
	C558	CERAMIC CAPACITOR	CCMCH040C50
	C559	CERAMIC CAPACITOR	CCDRH560J50
	C560	CERAMIC CAPACITOR	CCMCH050C50
	C561	CERAMIC CAPACITOR	CCMCH040C50
	C562	CERAMIC CAPACITOR	CCDSH470J50
	C563	CERAMIC CAPACITOR	CKDYB102K50
	C564	ELECTR. CAPACITOR	CEAS4R7M50
	C565	CERAMIC CAPACITOR	CKDYF103Z50
	C566	MYLOR FILM CAPACITOR	CQMA333J50
	C567	MYLOR FILM CAPACITOR	CQMA154J50
	C568	CERAMIC CAPACITOR	CKDYF103Z50
	C569, 570	CERAMIC CAPACITOR	CCMCH270J50
	C571	CERAMIC CAPACITOR	CKDYF103Z50
	C572	ELECTR. CAPACITOR	CEAS101M10
	C573	CERAMIC CAPACITOR	CCMSL101J50
	C574	CERAMIC CAPACITOR	CKDYB102K50
	C575	ELECTR. CAPACITOR	CEAS102M16
	C576	CERAMIC CAPACITOR	CKDYB102K50
	C577-580	CERAMIC CAPACITOR	CCMSL101J50
	C581, 582	ELECTR. CAPACITOR	CEAS220M16
	C583	CERAMIC CAPACITOR	CKDYF473Z50

RESISTORS

Mark	NO	Description	Part NO.
	VR501-503	VR(4.7K)	ACP1024
	VR504	VR(10K)	ACP1025
	VR505, 506	VR(47K)	ACP1027
	R1148	CARBON FILM RESISTOR	RD1/2PM100J
	R1195	METAL OXIDE RESISTOR	RS3LMF560J
	R1229	CARBON FILM RESISTOR	RD1/4PMFL150J
	R1511	CARBONFILM RESISTOR	RD1/2PMFL3R9J
	R1523, 1526	METALFILM RESISTER	RN1/4PC4702F
	R1529	CARBONFILM RESISTOR	RD1/2PMFL680J
	R1530	CARBONFILM RESISTOR	RD1/4PM221J

Mark	NO	Description	Part NO.
	R1531	METALFILM RESISTER	RN1/4PC4302F
	R1541, 1542	METALFILM RESISTER	RN1/4PC □□□□ F
	R1588	CARBONFILM RESISTOR	RD1/4PMFL8R2J
	R1610	METAL OXIDE RESISTOR	RS2LMF560J
	R1611	CARBON FILM RESISTOR	RD1/2PM391J
		Other resistors	RD1/8PM □□□ J

OTHERS

	X501	CRYSTAL OSCILLATOR(4.0MHz)	ASS-013
		PHONO JACK 9-P	AKB1133
		JACK	AKN-207
		SOCKET	AKP1064
		TV FRONT END	AXF1040

MICOM・SURROUND Assembly (AWZ2976)

SEMICONDUCTORS

	IC301		PA0042
	IC302		LA3607
	IC303		M5218L
	IC304		BU4066BL
	IC401	TV SYSTEM CONT'L	PDB010-A
	IC402		M6M80021P
	IC403		TC4051BP
	IC404		TC4066BP
	IC405		M51951BSL
	Q301, 302	TRANSISTOR	RN1203
	Q303	TRANSISTOR	RN2203
	Q401	TRANSISTOR	2SC1740S
	Q402	TRANSISTOR	2SA933S
	Q403-409	TRANSISTOR	2SC1740S
	Q410	TRANSISTOR	2SD438(A)
	Q411	TRANSISTOR	2SA933S
	Q412	TRANSISTOR	2SC1740S
	Q413	TRANSISTOR	2SA933S
	Q414-416	TRANSISTOR	2SC1740S
	Q417	TRANSISTOR	2SA933S
	Q418	TRANSISTOR	2SC1740S
	Q419	TRANSISTOR	2SA933S
	Q420	TRANSISTOR	2SC1740S
	Q421	TRANSISTOR	2SA933S
	Q422-425	TRANSISTOR	2SC1740S
	Q426-428	TRANSISTOR	2SA933S
	Q429, 430	TRANSISTOR	2SC1740S
	Q431, 432	TRANSISTOR	2SA933S
	Q433	TRANSISTOR	2SC1740S
	Q434-436	TRANSISTOR	2SA933S
	Q437, 438	TRANSISTOR	2SC1740S
	D301	ZENER DIODE	RD12ESB3
	D401, 402	DIODE	1SS252
	D405-408	DIODE	1SS252
	D415, 417	DIODE	1SS252
	D418	ZENER DIODE	RD5.1ESB2
	D419-421	DIODE	1SS252
	D423-426	DIODE	1SS252
	D428, 429	DIODE	1SS252
	D431-434	DIODE	1SS252
	D435		RD3.6ESB2

Mark	NO	Description	Part NO.

COIL

	L401	AXIAL INDUCTOR	LAU150K

CAPACITORS

	TC431	CERAMIC TRIMMER	ACM-020
	C311-314	ELECTR. CAPACITOR	CEAS010M50
	C316	ELECTR. CAPACITOR	CEAS102M16
	C317	MYLOR FILM CAPACITOR	CQMA272J50
	C318	MYLOR FILM CAPACITOR	CQMA561J50
	C319	MYLOR FILM CAPACITOR	CQMA822J50
	C320	MYLOR FILM CAPACITOR	CQMA561J50
	C321	MYLOR FILM CAPACITOR	CQMA153J50
	C322	MYLOR FILM CAPACITOR	CQMA102J50
	C323	MYLOR FILM CAPACITOR	CQMA273J50
	C324	MYLOR FILM CAPACITOR	CQMA182J50
	C325	MYLOR FILM CAPACITOR	CQMA393J50
	C326	MYLOR FILM CAPACITOR	CQMA272J50
	C327	MYLOR FILM CAPACITOR	CQMA683J50
	C328	MYLOR FILM CAPACITOR	CQMA472J50
	C329	AUDIO FILM CAPACITOR	CFTXA104J50
	C330	MYLOR FILM CAPACITOR	CQMA822J50
	C331		CFTXA184J50
	C332	MYLOR FILM CAPACITOR	CQMA123J50
	C333	ELECTR. CAPACITOR	CEAS470M16
	C334	ELECTR. CAPACITOR	CEAS220M16
	C336	ELECTR. CAPACITOR	CEAS221M16
	C337, 338	CERAMIC CAPACITOR	CKDYF103Z50
	C339-342	ELECTR. CAPACITOR	CEANP010M50
	C343, 344	ELECTROLYTIC CAPACIT	CEAS4R7M50
	C411	CERAMIC CAPACITOR	CKDYX104M25
	C412	CERAMIC CAPACITOR	CKDYF472Z50
	C413	ELECTR. CAPACITOR	CEAS0R1M50
	C414	CERAMIC CAPACITOR	CKDYF473Z50
	C415, 416	CERAMIC CAPACITOR	CKDYF223Z50
	C417	ELECTR. CAPACITOR	CEAS330M25
	C418	ELECTR. CAPACITOR	CEAS010M50
	C419	ELECTR. CAPACITOR	CEAS100M50
	C422	CERAMIC CAPACITOR	CKDYF472Z50
	C423	ELECTR. CAPACITOR	CEAS100M50
	C424	ELECTR. CAPACITOR	CEAS010M50
	C425	CERAMIC CAPACITOR	CKDYF103Z50
	C426, 427	CERAMIC CAPACITOR	CKDYF473Z50
	C428	ELECTR. CAPACITOR	CEAS101M10
	C429	CERAMIC CAPACITOR	CKDYF103Z50
	C430	CERAMIC CAPACITOR	CCDCH390J50
	C432	CERAMIC CAPACITOR	CCDCH820J50
	C433	ELECTR. CAPACITOR	CEAS2R2M50
	C434	CERAMIC CAPACITOR	CKDYF473Z50
	C435	ELECTR. CAPACITOR	CEAS0R1M50
	C436	ELECTR. CAPACITOR	CEAS101M10
	C437	ELECTR. CAPACITOR	CEAS2R2M50
	C438	ELECTR. CAPACITOR	CEAS330M25
	C439	CERAMIC CAPACITOR	CKDYF473Z50
	C440, 441	ELECTR. CAPACITOR	CEAS2R2M50

Mark	NO	Description	Part NO.
	C442	ELECTR. CAPACITOR	CEAS101M10
	C443	CERAMIC CAPACITOR	CKDYF473Z50
	C444-446	ELECTR. CAPACITOR	CEAS2R2M50
	C447	ELECTR. CAPACITOR	CEAS010M50
	C448	CERAMIC CAPACITOR	CKDYF103Z50
	C449, 450	ELECTR. CAPACITOR	CEAS010M50
	C452-454	ELECTR. CAPACITOR	CEAS010M50

RESISTORS

Mark	NO	Description	Part NO.
	R1264	RESISTOR ARRAY(100K)	RA6T104J
	R1284	RESISTOR ARRAY (10K)	RA8T103J
	R1293	RESISTOR ARRAY (10K)	RA4T103J
	R1321	RESISTOR ARRAY(4.7K)	RA4T472J
	R1322	RESISTOR ARRAY (10K)	RA4T103J
	R1491, 1492	CARBON FILM RESISTOR	RD1/4PMFL3R9J
	R819	CARBON FILM RESISTOR	RD1/4PMFL220J
		Other resistors	RD1/8PM□□□J

OTHERS

Mark	NO	Description	Part NO.
	X401	CERAMIC RESONATOR(4.19MHz)	ASS1018

LOGIC Assembly (AWZ2955)

SEMICONDUCTORS

Mark	NO	Description	Part NO.
	IC980		TC74HC04AP
	IC981		TC74HC4040AP
	IC982		TC74HC74AP
	IC983		TC74HC00AP
	IC984		TC74HC32AP
	IC985		TC74HC04AP
	IC986		TC74HC08AP
	IC987		TC74HC4040AP
	Q925, 926	TRANSISTOR	2SC1740S
	D980-982	DIODE	1SS252
	D984	DIODE	1SS252

CAPACITORS

Mark	NO	Description	Part NO.
	C250	CERAMIC CAPACITOR	CKDYF473Z50
	C251	CERAMIC CAPACITOR	CCCSL680J50
	C252	CERAMIC CAPACITOR	CKDYB102K50
	C253	CERAMIC CAPACITOR	CCCSL101J50
	C254	CERAMIC CAPACITOR	CKDYF473Z50
	C255	CERAMIC CAPACITOR	CCCSL101J50
	C256	CERAMIC CAPACITOR	CCCSL121J50
	C259	CERAMIC CAPACITOR	CKDYF473Z50
	C260	CERAMIC CAPACITOR	CCCSL221J50
	C261-266	CERAMIC CAPACITOR	CKDYF473Z50
	C267	ELECTR. CAPACITOR	CEAS010M50
	C268	CERAMIC CAPACITOR	CCCSL101J50

RESISTORS

Mark	NO	Description	Part NO.
		All resistors	RD1/8PM□□□J

PINP SELECT Assembly (AWZ2956)

SEMICONDUCTORS

Mark	NO	Description	Part NO.
	IC901, 902		NJM2235S
	Q901	TRANSISTOR	2SA933S
	Q902, 903	TRANSISTOR	2SC1740S
	D901-910	DIODE	1SS252

CAPACITORS

Mark	NO	Description	Part NO.
	C971	ELECTR. CAPACITOR	CEAS100M50
	C972	CERAMIC CAPACITOR	CKDYB103K50
	C973-976	ELECTR. CAPACITOR	CEAS100M50
	C977	CERAMIC CAPACITOR	CKDYB103K50
	C978	ELECTR. CAPACITOR	CEAS100M50
	C979-981	ELECTR. CAPACITOR	CEAS101M16
	C982	ELECTR. CAPACITOR	CEAS221M16

RESISTORS

Mark	NO	Description	Part NO.
		All resistors	RD1/8PM□□□J

9. ADJUSTMENTS

- Adjustment items are described as follows.

9.1 When POWER SUPPLY • DEFLECTION assembly is repaired.
  9.1.1 Power supply section.
  9.1.2 Deflection section.
9.2 When POWER SUPPLY • DEFLECTION assembly is replaced.
  9.2.1 Power supply section.
  9.2.2 Deflection section.
9.3 When VERTICAL • VIDEO • AUDIO assembly is repaired.
  9.3.1 Vertical section.
  9.3.2 FACTORY ADJ mode
  9.3.3 Video section.
9.4 When VERTICAL • VIDEO • AUDIO assembly is replaced.
9.5 When MICOM • SURROUND assembly is repaired or replaced.
9.6 When AV I/O-2P • TUNER assembly is repaired.
9.7 When AV I/O-2P • TUNER assembly is replaced.
9.8 When CONVERGENCE assembly is repaired. or replaced.
  9.8.1 Parabola waveform top level ajustment.
  9.8.2 Convergence position control.
  9.8.3 Convergence adjustment.
9.9 When FRONT CONTROL assembly is repaired.
9.10 When FRONT CONTROL assembly is replaced.
9.11 When R, G or B CRT DRIVE assembly is repaired or replaced.
9.12 When SUB DEFLECTION assembly is repaired or replaced.
9.13 When CRT assembly R, G or B is replaced.
9.14 When LENS assembly is replaced.
9.15 When PINP or PINP SUB assemblies are repaired or replaced. (SD-P4043-K only)
9.16 When other assemblies are repaired or replaced.
9.17 DPO level setting.
9.18 DPO sensitivity adjustment.
9.19 Anode cable connection and disconnection.

- These adjustment procedures are described separately for adjustments following assembly exchange and adjustments following repairs.
- When replacing the assemblies, always use recommended replacements.
- Symbols in parentheses next to the adjustment position ( ) indicate denotes the relevant assembly to be adjusted.

D : POWER SUPPLY • DEFLECTION assembly
VR1 : Focus variable resistor
V : VERTICAL • VIDEO • AUDIO assembly
M : MICOM • SURROUND assembly
T : AV I/O-2P • TUNER assembly
C : CONVERGENCE assembly
P : PINP assembly

- The adjustment points and TP terminals on the each assemblies are shown in Fig. 9-8 thru 9-11.

Fig. 9-8 :
  CONVERGENCE assembly, front panel, FRONT CONTROL assembly and focus variable resistor.
Fig. 9-9 :
  VERTICAL • VIDEO • AUDIO assembly, AV I/O-2P • TUNER assembly, MICOM • SURROUND assembly, POWER SUPPLY • DEFLECTION assembly and PINP assembly.
Fig. 9-10 :
  R, G, B CRT DRIVE assembly and deflection yoke.
Fig. 9-11 :
  Lens assembly (Red, Green, Blue).

- Set the input terminals at the rear panel as follows unless otherwise noted.

VIDEO signal : INPUT VDP VIDEO terminal
AUDIO signal : INPUT VDP AUDIO terminal

- Set the picture quality to standard by remote control unit unless otherwise noted.

9.1 WHEN POWER SUPPLY・DEFLECTION ASSEMBLY IS REPAIRED

Note: VR591 and VR593 are protected by the shield covers (ANH1166) so that they can not be adjusted. Do not try to turn these volumes by removing their shield cover. (Otherwise, the sensitivity of the protection circuit against the X-ray and the anode voltage will be affected.)

- Adjustment test points are located in the POWER SUPPLY・DEFLECTION assembly.

9.1.1 Power supply section

Step No.	Adjustment item	Input signal	Adjustment point	Adjustment procedure
1	135V power supply adjustment	Monoscope signal	VR651 (D)	Adjust the voltage of both sides of C741 to 135V ± 1V.

● Each output voltages check

After performed +135V adjustment, confirm the each voltages as follows.

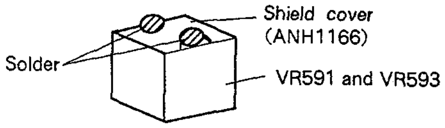
Measuring point	Voltage	Measuring point	Voltage
E1 +12V STB (6 pin or 7 pin) for P.GND (5 pin)	+12V ± 4V	E1 +30V (12 pin) for V.GND (11 pin)	+30V ± 5V
E3 +23V (4 pin) for V.GND (2 pin or 3 pin)	+25V ± 5V	E1 +39V (13 pin) for GND (10 pin)	+39V ± 3V
E3 −23V (1 pin) for V.GND (2 pin or 3 pin)	−25V ± 5V	E2 +35V (4 pin or 3 pin) for GND (2 pin or 1 pin)	+ 32V ± 5V (less than +40V)
E1 +13.5V (8 pin or 9 pin) for GND (10 pin)	+13.5V ± 0.5V		
E1 +9V (1 pin) for GND (10 pin)	+ 10V ± 2V	E4 H.T.+ (4 pin) for H.T.− (5 pin)	+6.25V ± 0.25V

9.1.2 Deflection section

Step No.	Adjustment item	Input signal	Adjustment point	Adjustment procedure
1	Focus adjustment	Cross hatch signal	Focus VR (VR1)	Optimize the focus of each CRT assembly. (Focus is easier to judge if red and blue are displaced by turning the convergence controls on the remote control as shown in Fig. 9-8. Readjust these controls to their original positions after completing the focus adjustment.)
2	Horizontal size adjustment	Monoscope signal or ordinary broadcasting	VR592 (D)	Adjust to 93.5%±2% (left), 94.5%±2% (right) when using the monoscope signal, and adjust so that the screen picture does not lack any part of the entire picture field when using the ordinary broadcasting. After adjustment is complete, confirm the vertical size in section 9.3.1 and convergence in section 9.8.3.
3	White balance adjustment	Ordinary broadcasting	Screen (VR1) (R) (B)	Adjust the white if proper adjustment cannot be achieved as follows. Set the COLOR by the remote control to minimum, adjust the screen VRs to obtained best picture.

9.2 WHEN POWER SUPPLY・DEFLECTION ASSEMBLY IS REPLACED

Note: As VR591 and VR593 in the POWER SUPPLY・DEFLECTION assembly supplied as a spare part are protected by the shield cover (ANH1166). Never take off the shield cover (ANH1166).



9.2.1 Power supply section

- No adjustment required.

9.2.2 Deflection section

- Adjust focus, horizontal size and white balance as described in section 9.1.2.

9.3 WHEN VERTICAL・VIDEO・AUDIO ASSEMBLY IS REPAIRED

- Adjustment test points (TP) are located in the VERTICAL・VIDEO・AUDIO assembly unless otherwise noted. (Refer to Fig. 9-9)

9.3.1 Vertical section

Step No.	Adjustment item	Input signal	Adjustment point	Adjustment procedure
1	Vertical size adjustment	Monoscope signal	VR103 (V)	Adjust the vertical size to 90 % ± 3 %. After adjustment is complete, confirm the convergnece as described in section 9.8.3.

9.3.2 FACTORY ADJ mode

- **What is FACTORY ADJ mode ?**

Picture quality data (PIONEER standard and VNR) for PROJECTION MONITOR RECEIVER are stored in a non-volatile memory (IC402) of the MICOM・SURROUND assembly. FACTORY ADJ mode is used for picture quality data modification or new data addition which may be required when replacing or repairing the MICOM・SURROUND assembly or when replacing IC402. When this mode is activated, the convergence position is set to the center of its variable range (the convergence position is reset).

● FACTORY ADJ mode operation

FACTORY ADJ mode is activated by pressing S874 on the front with a small screwdriver or equivalent. (See Fig. 9-8.)

Then, a telop is displayed in red on the screen as shown in Fig. 9-1①. This mode is for confirming control operations for picture quality, sound quality and convergence position. For details, see page 86.

When the MUTE key on the remote control unit is subsequently pressed, a telop is displayed in blue as shown in ②.

This is PIONEER standard setting mode. By pressing the PICTURE key on the remote control unit, the items of picture quality data will be cyclically selected. Any desired item can be directly selected with the corresponding unmeric key on the remote control unit. Use the ◀ADJUST▶ key on the remote control unit (numerical values in the screen telop are changed by the key).

When the MUTE key is pressed again, a telop will be displayed in green as shown in ③. This is VNR setting mode. In the same manner as with the above PIONEER standard setting mode, use the PICTURE key or numeric keys for selection of the picture quality items and the ◀ADJUST▶ key for adjustments.

By pressing S874 again, FACTORY ADJ mode is released and the normal condition is resumed.

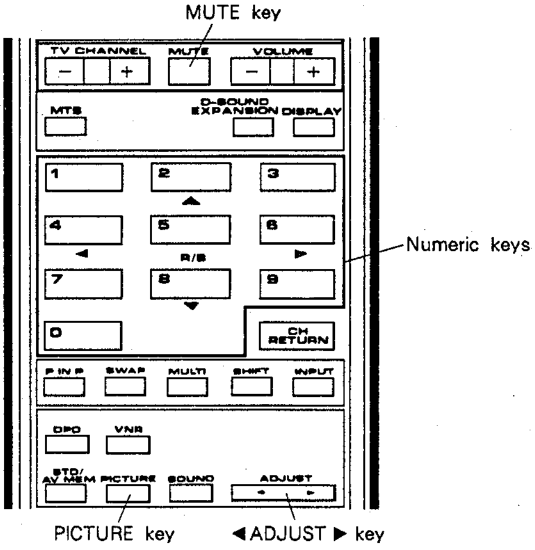
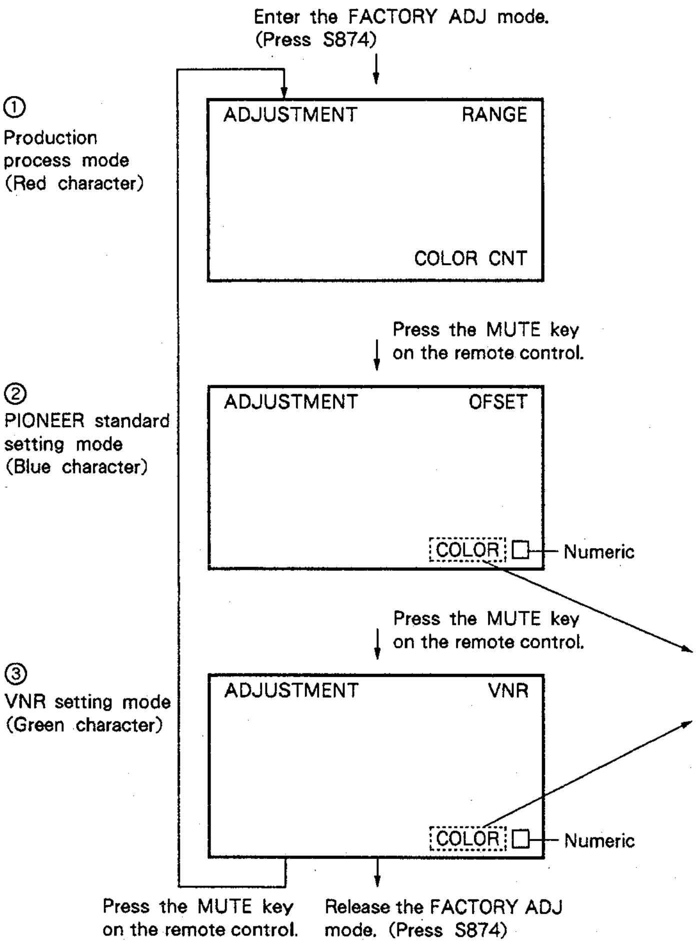

MUTE key
TV CHANNEL
MUTE
VOLUME
MTS
D-SOUND EXPANSION
DISPLAY
1
2
3
4
5
6
7
8
9
0
R/S
CH RETURN
P IN P
SWAP
MULTI
SHIFT
INPUT
DPO
VNR
STD/AV MEM
PICTURE
SOUND
ADJUST
Numeric keys
PICTURE key
◀ADJUST▶ key

Fig. 9-1-1 Remote control unit


Enter the FACTORY ADJ mode.
(Press S874)
①
Production process mode
(Red character)
ADJUSTMENT
RANGE
COLOR CNT
Press the MUTE key on the remote control.
②
PIONEER standard setting mode
(Blue character)
ADJUSTMENT
OFSET
COLOR
Numeric
Press the MUTE key on the remote control.
③
VNR setting mode
(Green character)
ADJUSTMENT
VNR
COLOR
Numeric
Press the MUTE key on the remote control.
Release the FACTORY ADJ mode. (Press S874)

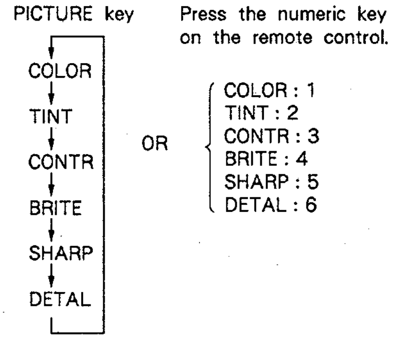
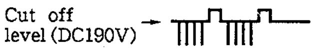
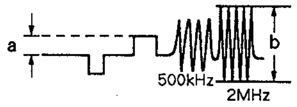
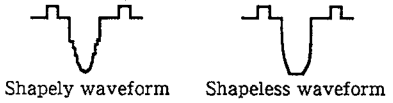

PICTURE key
COLOR
TINT
CONTR
BRITE
SHARP
DETAL
OR
Press the numeric key on the remote control.
COLOR : 1
TINT : 2
CONTR : 3
BRITE : 4
SHARP : 5
DETAL : 6

Fig. 9-1-2 Screen indication of FACTORY ADJ mode

9.3.3 Video section

- As to the FACTORY ADJ mode, refer to the section 9.3.2.

Step No.	Adjustment item		Input signal	Adjustment point	Adjustment procedure
1	Comb filter adjustment		Color bar	VR101, L108 (V)	Adjust TP-01 3.58MHz component to minimum level.
2	White balance adjustment		Color bar signal without color signal	Screen VR (R),(B) (VR1) VR105(R) } Drive VR (V) VR104(B) } Drive VR (V)	Adjust the screen VRs (R) and (B) until grey color can just be seen in the color of dark area. (Do not move the green VR at this stage.)
					Using the drive VR, adjust the color of bright area to white.
3	PIONEER Standard setting *1	Set to the PIONEER standard setting mode of FACTORY ADJ mode. (After adjustment is complete, release the normal condition.)			
4		Brightness adjustment	Cross hatch signal	COLOR (*4)	Minimize Color by remote control.
				BRITE (*4)	Adjust the cut off level at TP-GK of G. CRT DRIVE assembly to DC190V. (After adjustment, confirm the white balance.)  (After this adjustment, adjust color as described in step No. 4).
5		Detail adjustment	Multi burst	DETAL (*4)	Adjust the numerical value of telop to 2.5. *3
6		Sharpness adjustment		SHARP (*4)	At TP-05, set the rate of b (peak-to-peak value at 2MHz) to a (level from black to white) as follows. a : b = 1 : 2 (+6.0dB) 
7		Color adjustment	Color bar	COLOR (*4)	Adjust screen to optimum condition.
8		Tint adjustment		TINT (*4)	Adjust screen to optimum condition.
9		Contrast adjustment	Free signal	CONTR (*4)	Adjust screen to optimum condition.
10				—	At the TP-BK of B. CRT DRIVE assembly, confirm that the signal is shaped as shown below. 
11	VNR setting		Set to the VNR setting mode of FACTORY ADJ mode. (After adjustment is complete, release the normal condition.) *2		
			Set the value of numeric telop for each adjustment items as table. *3		
12	Blue tailing adjustment		Cross signal	—	Adjust the SG output of the input cross signal to maximum level.
					Maximize contrast by remote control.
				VR102 (V)	Turn VR102 fully counter clockwise (resulting in blue tailing.).
					Turn the VR clockwise until there is no blue tailing at the vertical cross line on the screen.

Item	Telop	Item	Telop
COLOR	– 30	BRITE	– 15
TINT	0	SHARP	– 50
CONTR	0	DETAL	– 50

*1 : When setting the PIONEER standard, "detail" is displayed for the numeric telop for adjustment in FACTORY ADJ mode.
*2 : Check the convergence position after releasing FACTORY ADJ mode.
*3 : These values are set at the factory and can be changed at the request of the user.
*4 : Adjust by remote control.

9.4 WHEN VERTICAL • VIDEO • AUDIO ASSEMBLY IS REPLACED

Adjust the vertical size adjustment of vertical section, white balance adjustment of video block, PIONEER standard setting, VNR setting and blue tailing adjustment as described in section 9.3.

Note: What is ADJUSTMENT RANGE Mode in FACTORY ADJ?

In ADJUSTMENT RANGE mode, three points, CENTER, MIN and MAX, in the variable range of the control items (COLOR, TINT, CONTRAST, BRITE, SHARPNESS, DETAL, BASS, TREBL, BALNC and CONVER) can be selected in sequence.

This permits the variable range check for the above items to be performed easily and quickly after repairs. To confirm, the numerical keys on the remote control unit are used after activating ADJUSTMENT RANGE mode of FACTORY ADJ mode. The relationship between the control items and the numerical keys are shown to the right.

[1] : COLOR
[2] : TINT
[3] : CONTRAST
[4] : BRITE
[5] : SHARPNESS
[6] : DETAL
[7] : BASS
[8] : TREBL
[9] : BALNC
[0] : CONVER

Example ;

When performing the COLOR variable range check, press the [1] key on the remote control unit.
Press the [1] key repeatedly.

→ CNT → MIN → MAX ┐

The points to be checked are cyclically selected.

Confirmation of BALNC ([9] key)
Press the [9] key repeatedly.
CNT : Both channel
MIN : Rch only
MAX : Lch only

Confirmation of CONVER ([0] key)
Press the [0] key repeatedly.
CNT : Center position
MIN : Moves to the slant upward of right.
MAX : Moves to the slant downward of left.

9.5 MICOM • SURROUND ASSEMBLY IS REPAIRED OR REPLACED

Step No.	Adjustment item	Input signal	Adjustment point	Adjustment procedure
1	PIONEER standard setting *1, *3	——	——	Perform PIONEER standard setting as described in section 9.3.3.
2	Convergence position *1, *3	Signal with synchronizing signal meaning	——	Perform convergence position control adjustment as described in section 9.8.2.
3	Telop position		TC431 (M)	Generate test cross signal (refer to Fig. 9-3), and adjust the cross to center of screen.
4	VNR setting *1, *2	——	——	Perform VNR setting as described in section 9.3.3.
5	DPO BASE setting *1, *2	——	——	Perform DPO BASE setting as described in section 9.18.
6	Other setting *1, *2	——	——	Referring to the operating instructions, set the other cleared data including the TUNER PRESET data.

Note :
*1 : Steps 1, 2 and 4 through 6 are related to the information stored in the IC402 non-volatile memory (M6M80021P) of the MICOM•SURROUND assembly. Therefore, perform these steps when the stored data have been cleared by repairing the MICOM • SURROUND assembly or when IC402 has been replaced.
*2 : Steps 4 through 6 must be done when the MICOM • SURROUND assembly has been replaced. Initial data set at the factory are stored in IC402. Only confirm the data.
*3 : The items adjusted in steps 1 and 2 usually go out of when the MICOM • SURROUND assembly is replaced. Be sure to adjust them.

9.6 WHEN AV I/O-2P・TUNER ASSEMBLY IS REPAIRED

- Connection diagram is refered to Fig. 9-2.
- Adjustment points and test points (TP) are shown in Fig. 9-9.
- Perform the adjustment set to the TEST mode (Note 1).
- Perform the adjustment by using the channel 9 unless otherwise noted.
- Video and audio input signals are described in the below.

Ⓝ; No signal

Video signal

V① ; fv = EIA color bar, 60dBμV
V② ; 8ch, unmodulated, 60dBμV
V③ ; 9ch, unmodulated, 60dBμV

Audio signal (MONO)

S① ; f_A = 1kHz, 100% MOD, 54dBμV
S④ ; unmodulated, 54dBμV

Audio signal (STEREO) ;

dbx noise reduction ON, PRE-EMPHASIS ON

S② ; f_A = 300Hz, 30% MOD,
Lch (or Rch) only, 54dBμV
S③ ; f_A = 5kHz, 30% MOD,
Lch (or Rch) only, 54dBμV

Note 1 ;

How to set the TEST mode.

- Short-circuit TP-OPTION and GND in the MICOM・SURROUND assembly. (Fig. 9-9)
- Disconnect the AC power cord from the AC outlet, then connect it again.

How to release the TEST mode.

- Release the short-circuit TP-OPTION and GND in the MICOM・SURROUND assembly.
- Disconnect the AC power cord from the AC outlet, then connect it again.

Video System

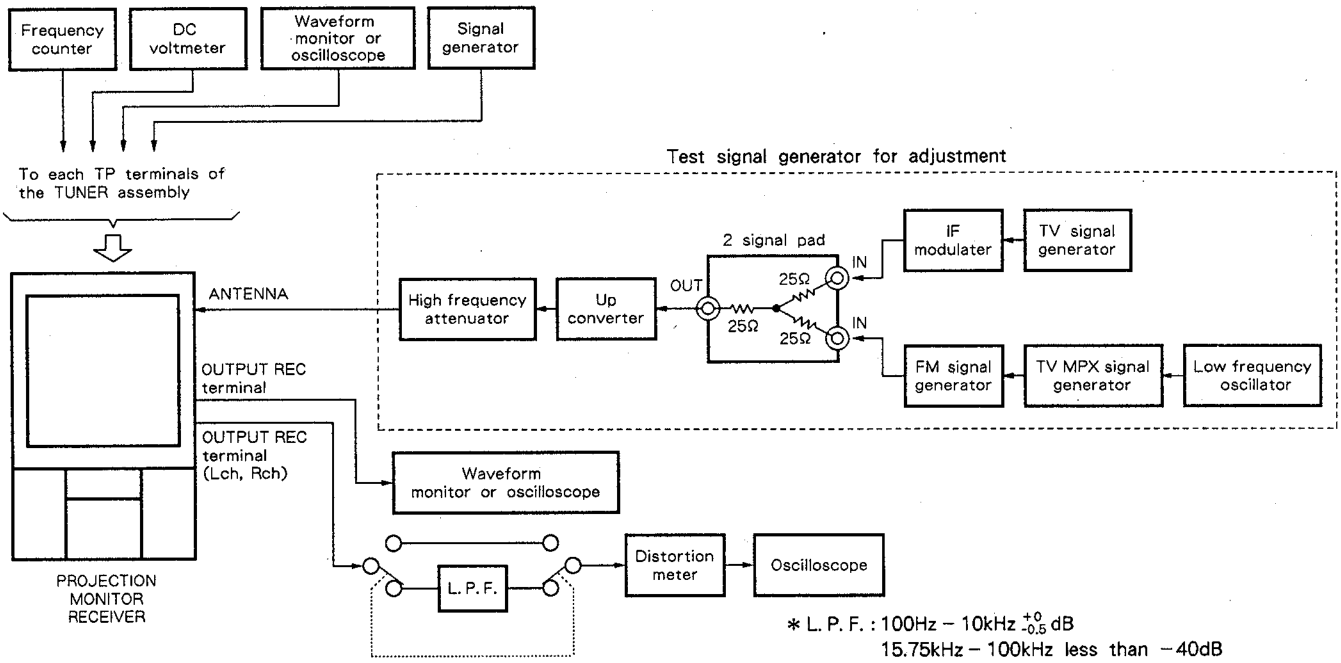
Step No.	Adjustment item	Input signal		Adjustment point	Adjustment procedure
		Video	Audio		
1	Adjacent audio trap	V②	S④	L510 (T)	Adjust TP-IF IN 47.25MHz component to minimum level.
2	Audio trap	V③	S④	L511 (T)	Adjust TP-IF IN 41.25MHz component to minimum level.
3	Synchronous detection	V①	S①	——	Short TP-IF AGC to GND, and measure TP-APC voltage.
4				L504 (T)	Open TP-IF AGC, and adjust the TP-APC voltage to the voltage measured in step 3.
5	RF AGC			VR502 (T)	Adjust the TP-RF AGC voltage to 6.5V.
6	AFT			L506 (T)	Adjust the TP-AFT voltage to 2.5V.
7	VIDEO output			VR501 (T)	Adjust the output level of the OUTPUT REC terminal on the rear panel to 1Vp-p when that terminal is terminated by 75 ohms.

Audio System

Step No.	Adjustment item	Input signal		Adjustment point	Adjustment procedure
		Video	Audio		
1	Audio detection	V①	S①	L501 (T)	Adjust the distortion of the OUTPUT REC terminal on the rear panel to minimum level.
2	dbx filter	Ⓝ	Ⓝ	VR506 (T)	Input the signal of 22.9kHz/245mV to TP-COMP IN, and adjust TP-FIL. ADJ output to minimum.
3	VCO	Ⓝ	Ⓝ	——	Measure the DC voltage of TP-MPX VCO with no input signal.
4		Ⓝ	Ⓝ	VR505 (T)	Input the signal of 15.734kHz/48mV to TP-COMP IN, and adjust the DC voltage of TP-MPX VCO to the voltage measured in step 3.
5	Separation	V①	S②	VR504 (T)	Adjust the output of the OUTPUT REC terminal on the rear panel to minimum level.
6			S③	VR503 (T)	
7	Repeat steps 5 and 6 to obtained best separation.				

9.7 WHEN AV I/O-2P • TUNER ASSEMBLY IS REPLACED

- No adjustment required.


Frequency counter
DC voltmeter
Waveform monitor or oscilloscope
Signal generator
To each TP terminals of the TUNER assembly
Test signal generator for adjustment
ANTENNA
High frequency attenuator
Up converter
OUT
2 signal pad
25Ω
25Ω
25Ω
IN
IN
IF modulater
TV signal generator
FM signal generator
TV MPX signal generator
Low frequency oscillator
OUTPUT REC terminal
OUTPUT REC terminal (Lch, Rch)
Waveform monitor or oscilloscope
L. P. F.
Distortion meter
Oscilloscope
PROJECTION MONITOR RECEIVER

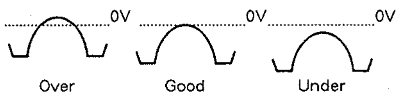
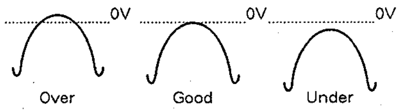
* L. P. F. : 100Hz – 10kHz $^{+0}_{-0.5}$ dB
15.75kHz – 100kHz less than –40dB

Fig. 9-2 Connection diagram when adjusting the tuner section

9.8 WHEN CONVERGENCE ASSEMBLY IS REPAIRED OR REPLACED

9.8.1 PARABOLA WAVEFORM TOP LEVEL ADJUSTMENT

- Adjustment test point (TP) are located in the CONVERGENCE assembly.
- Perform this adjustment only when convergence is shifted.

Step No.	Adjustment item	Adjustment point	Adjustment procedure	
1	TOP LEVEL OF H PARABOLA WAVEFORM	VR701 (C)	At TP702, set the top level of output waveform to 0V ± 20mV.	 0V 0V 0V Over Good Under
2	TOP LEVEL OF V PARABOLA WAVEFORM	VR702 (C)	At TP701, set the top level of output waveform to 0V ± 20mV.	 0V 0V 0V Over Good Under

9.8.2 CONVERGENCE POSITION CONTROL

The convergence position control of this model is performed by using keys on the remote control unit or by using the main unit. Flows of the screen displays and key operations are generalized in Fig. 9-3. For details, refer to the description of the convergence adjustment in the operating instructions. When FACTORY ADJ mode is once activated and deactivated, the convergence position is set to the center of its variable range (the position is reset).

● Description of Fig. 9-3

In ⓑ through ⓔ, a test cross is displayed. The cross is used for simple convergence position adjustment and some other adjustments for which the test cross is required.

In ⓕ through ⓘ, the input signal is displayed as-is, which can be used for the convergence position adjustment by supplying a cross hatch signal.

Note :

- Control by the main unit key
  ① : Control by SET key
  Adjustment; Control by SELECT / ADJUST + and − keys.
  + key : Moves the upward or to the right.
  − key : Moves the downward or to the left.
- Control by the remote control key
  ② : Control by the numeric keys 2, 4, 6 and 8.
  2 : Moves the upward
  4 : Moves to the left.
  6 : Moves to the right.
  8 : Moves the downward.
  ③ : Control by the numeric key 5.

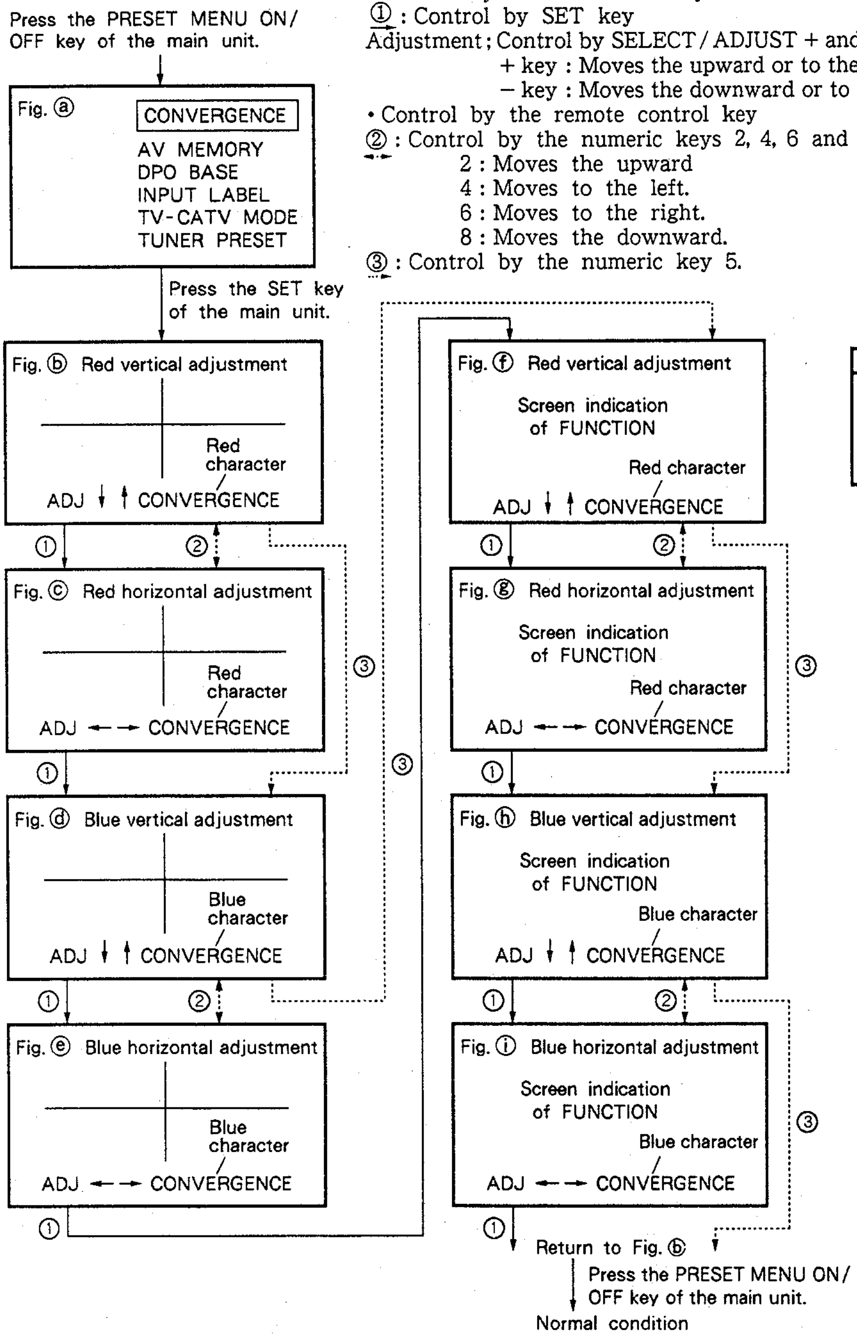

Press the PRESET MENU ON/ OFF key of the main unit.
Fig. ⓐ
CONVERGENCE
AV MEMORY
DPO BASE
INPUT LABEL
TV-CATV MODE
TUNER PRESET
Press the SET key of the main unit.
Fig. ⓑ Red vertical adjustment
Red character
ADJ ↓ ↑ CONVERGENCE
Fig. ⓒ Red horizontal adjustment
Red character
ADJ ←→ CONVERGENCE
Fig. ⓓ Blue vertical adjustment
Blue character
ADJ ↓ ↑ CONVERGENCE
Fig. ⓔ Blue horizontal adjustment
Blue character
ADJ ←→ CONVERGENCE
Fig. ⓕ Red vertical adjustment
Screen indication of FUNCTION
Red character
ADJ ↓ ↑ CONVERGENCE
Fig. ⓖ Red horizontal adjustment
Screen indication of FUNCTION
Red character
ADJ ←→ CONVERGENCE
Fig. ⓗ Blue vertical adjustment
Screen indication of FUNCTION
Blue character
ADJ ↓ ↑ CONVERGENCE
Fig. ⓘ Blue horizontal adjustment
Screen indication of FUNCTION
Blue character
ADJ ←→ CONVERGENCE
①
②
③
Return to Fig. ⓑ
Press the PRESET MENU ON/ OFF key of the main unit.
Normal condition

Fig. 9-3-3 Screen movement

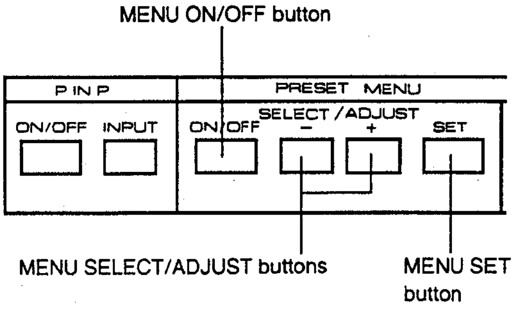

MENU ON/OFF button
PINP
PRESET MENU
ON/OFF
INPUT
ON/OFF
SELECT / ADJUST
−
+
SET
MENU SELECT/ADJUST buttons
MENU SET button

Fig. 9-3-1
Key disposition of the main unit

Each time the R/B key is pressed the line (red or blue) to be controlled changes alternately

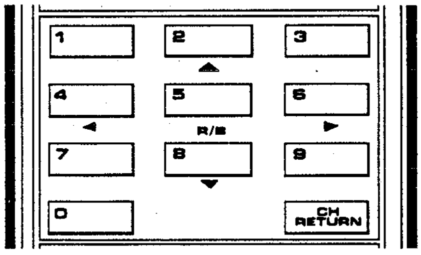

1
2
3
4
5
6
R/B
7
8
9
0
CH RETURN

Fig. 9-3-2
Key disposition of the remote control

9.8.3 CONVERGENCE ADJUSTMENT

- Picture movement and adjustment points are summarized in Fig. 9-4 and 9-5.
- Input signal is the cross-hatch signal.
- Convergence adjustment outline is referred to the Service manual SD-P401/KUX1C (ARP1455), and SD-P40/KU (ARP-977-0), except for H-S-PIN and H-S-LIN adjustments.
- After performed all adjustment, release the short-circuit to obtained white screen and perform the pre-adjustment.
- Correct the vertical line by horizontal correcting signal and correct the horizontal line by vertical correcting signal.
- Adjustment points are located in the CONVERGENCE assembly.

(1) GREEN LINE ADJUSTMENT

- Since the green lines are used as a reference when adjusting red and blue, make sure it is adjusted accurately.
- Short-circuit TP-47R, TP-47B and +12V TP in the VERTICAL•VIDEO•AUDIO assembly, then green lines appear in the screen. Release the short-circuit after green line adjustment.

Step No.	Adjustment item	Adjustment point	Adjustment procedure
1	GH-PIN	VR703 (C)	Adjust the green line to a straight line (refer to Fig. 9-4 and 9-5).
2	GH-KEY	VR704 (C)	
3	GV-BOW	VR705 (C)	
4	GV-KEY	VR706 (C)	
5	GV-S-KEY	VR707 (C)	
6	GV-PIN	VR708 (C)	
7	Repeat steps 1 thru 6 until the best possible picture is obtained.		

(2) RED LINE ADJUSTMENT

- Short-circuit TP-47B and +12V TP, then green lines and red lines appear in the screen. Release the short-circuit after red line adjustment.
- Adjust each VR so that the red lines converge with the green lines to obtain yellow lines.
- After adjustmet, perform fine-adjustment by observing the overall screen.

● Red horizontal distortion compensation adjustment

Step No.	Adjustment item	Adjustment point	Adjustment procedure
1	RH-SKEW	VR709 (C)	Adjust the red vertical lines in the center of the screen to straight lines without distortion and lean. (Refer to Fig. 9-4.)
2	RH-BOW	VR710 (C)	
3	Repeat steps 1 and 2.		
4	RH-KEY	VR711 (C)	Adjust the red vertical lines in the right and left section of the screen to straight lines without lean. (Refer to Fig. 9-4.)
5	RH-S-KEY	VR712 (C)	
6	Repeat steps 4 and 5.		
7	RH-PIN	VR713 (C)	Adjust the red vertical lines in the right and left sections of the screen to straight lines without distortion. (Refer to Fig. 9-4.)
8	RH-S-PIN	VR714 (C)	
9	Repeat steps 7 and 8 or steps 1 thru 8.		

● Red horizontal interval compensation adjustment

Step No.	Adjustment item	Adjustment point	Adjustment procedure
1	RH-POSITION	Refer to section 9.8.2	Adjust so that the red vertical lines converge with the green vertical lines in the center of the screen to obtain yellow lines. (This serves as the reference setting, but if the lines diverge during the adjustment, proceed with the adjustment after considering this divergence.)
2	RH-LIN	VR715 (C)	Adjust so that the red vertical lines converge with the green vertical lines in the right and left sections of the screen to obtain yellow lines. (Refer to Fig. 9-4)
3	RH-S-LIN	VR716 (C)	
4	RH-SIZE	VR717 (C)	
5	Repeat steps 1 thru 4.		

● Red vertical distortion compensation adjustment

Step No.	Adjustment item	Adjustment point	Adjustment procedure
1	RV-SKEW	VR718 (C)	Adjust the red horizontal lines in the center of the screen to straight lines without distortion and lean. (Refer to Fig. 9-5.)
2	RV-BOW	VR719 (C)	
3	Repeat steps 1 and 2.		
4	RV-KEY	VR720 (C)	Adjust the red horizontal lines in the lower and upper sections of the screen to straight lines without lean. (Refer to Fig. 9-5.)
5	RV-S-KEY	VR721 (C)	
6	RV-PIN	VR722 (C)	
7	Repeat steps 4 thru 6 or steps 1 thru 6.		

● Red vertical interval compensation adjustment

Step No.	Adjustment item	Adjustment point	Adjustment procedure
1	RV-LIN	VR723 (C)	Adjust so that the red horizontal lines converge the green horizontal lines in the center of the screen to obtain yellow lines. (This serves as the reference setting, but if the lines diverge during the adjustment, proceed with the adjustment after considering this divergence.) (Refer to Fig. 9-5.)
2	RV-POSITION	Refer to section 9.8.2	
3	RV-SIZE	VR724 (C)	Adjust so that the red horizontal lines converge the green horizontal lines in the lower and upper sections of the screen to obtain yellow lines. (Refer to Fig. 9-5.)
4	Repeat steps 1 thru 3.		

(3) BLUE LINE ADJUSTMENT

- Short-circuit TP-47R and +12V TP, then green lines and blue lines appear in the screen. Release the short-circuit after blue line adjustment.
- Adjust each VR so that the blue lines converge with the green lines to obtain cyan lines.
- After adjustment, perform fine-adjustment by observing the overall screen.

● Blue horizontal distortion compensation adjustment

Step No.	Adjustment item	Adjustment point	Adjustment procedure
1	BH-SKEW	VR725 (C)	Observe the blue vertical lines in the screen, and adjust in the same way as the red horizontal distortion compensation adjustment.
2	BH-BOW	VR726 (C)	
3	BH-KEY	VR727 (C)	
4	BH-S-KEY	VR728 (C)	
5	BH-PIN	VR729 (C)	
6	BH-S-PIN	VR730 (C)	

● Blue horizontal interval compensation adjustment

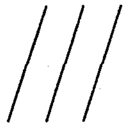
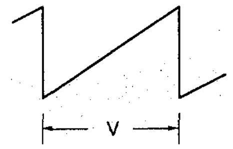
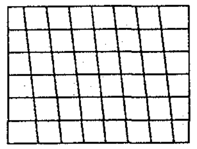
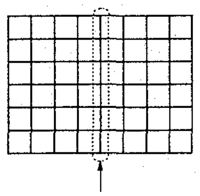
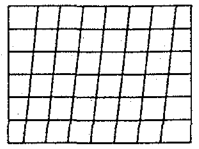
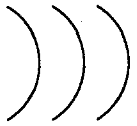
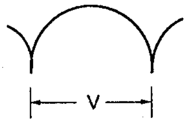
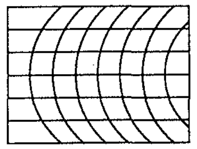
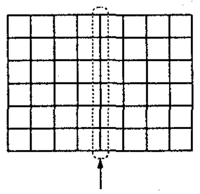
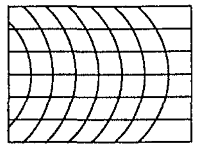
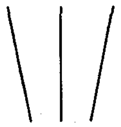
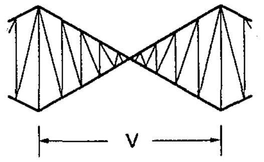
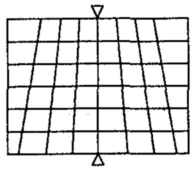
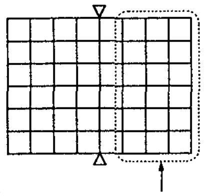
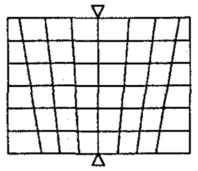
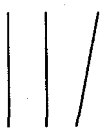
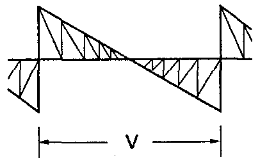
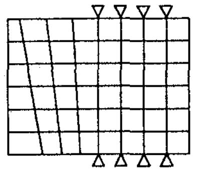
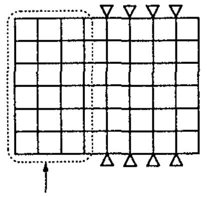
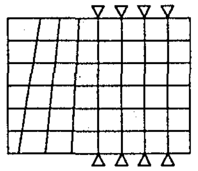
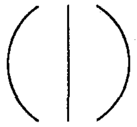
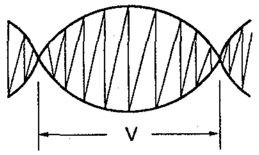
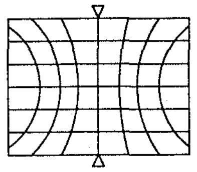
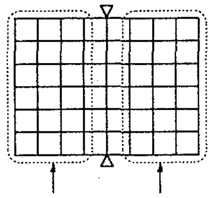
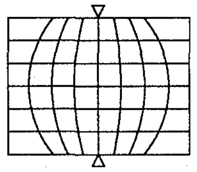
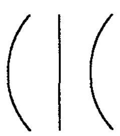
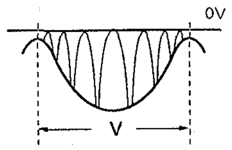
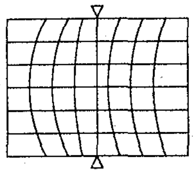
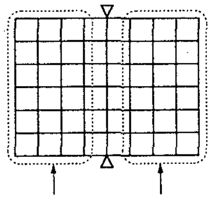
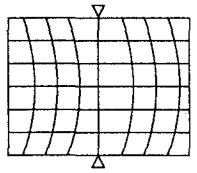
Step No.	Adjustment item	Adjustment point	Adjustment procedure
1	B-H-POSITION	Refer to section 9.8.2	Adjust so that the blue lines converge with the green lines to obtain cyan lines in the same way as the red horizontal interval compensation adjustment.
2	BH-LIN	VR731 (C)	
3	BH-S-LIN	VR732 (C)	
4	BH-SIZE	VR733 (C)	

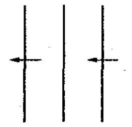
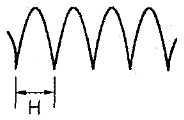
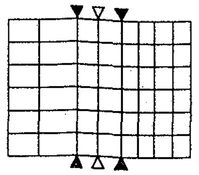
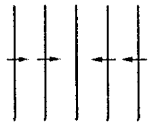
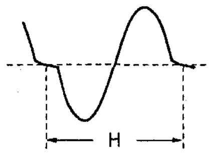
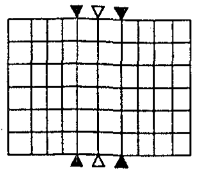
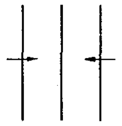
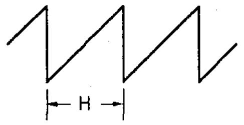
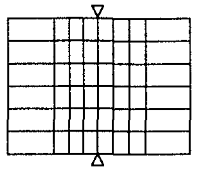
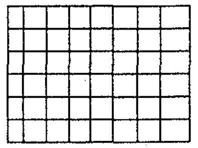
● Blue vertical distortion compensation adjustment

Step No.	Adjustment item	Adjustment point	Adjustment procedure
1	BV-SKEW	VR734 (C)	Observe the blue horizontal lines in the screen, and adjust in the same way as the red vertical distortion compensation adjustment.
2	BV-BOW	VR735 (C)	
3	BV-KEY	VR736 (C)	
4	BV-S-KEY	VR737 (C)	
5	BV-PIN	VR738 (C)	

● Blue vertical interval compensation adjustment

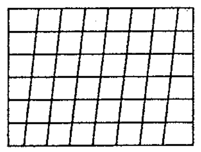
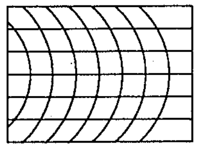
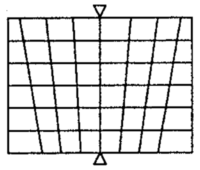
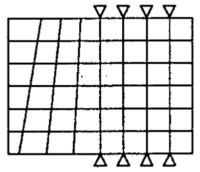
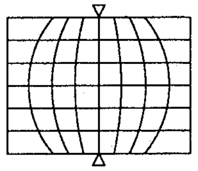
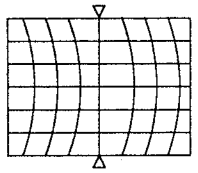
Step No.	Adjustment item	Adjustment point	Adjustment procedure
1	BV-LIN	VR739 (C)	Adjust so that the blue lines converge with the green lines to obtain cyan lines in the same way as the red vertical interval compensation adjustment.
2	BV-POSITION	Refer to section 9.8.2	
3	BV-SIZE	VR740 (C)	

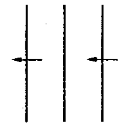
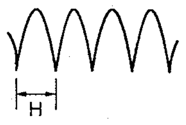
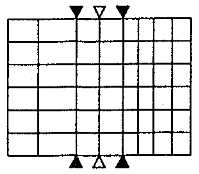
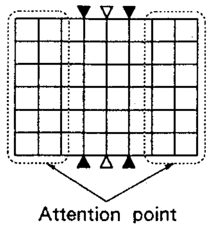
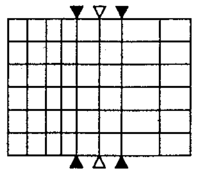
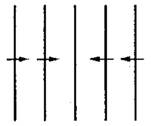
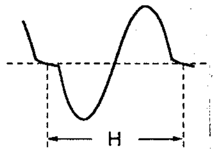
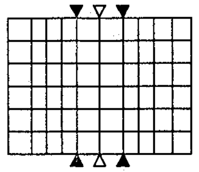
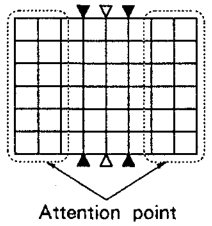
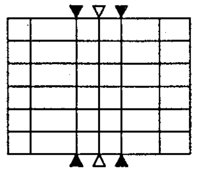
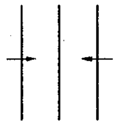
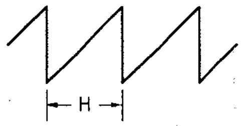
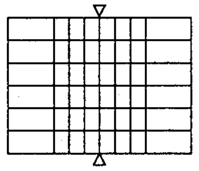
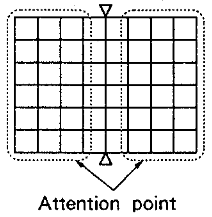
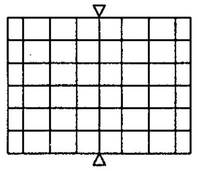
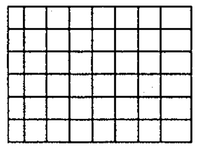
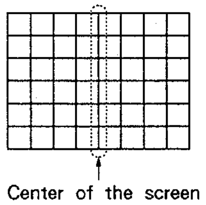
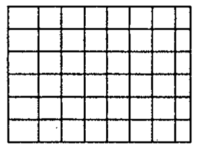
Compensation	Signal and mark *1	Compensating signal	Distorted screen	Corrected screen	Distorted screen	Adjustment point	
Horizontal distortion compensation	H - SKEW 	 V sawtooth wave		 Attention point		Observe the vertical lines in the center of the screen (where there is no H-KEY, H-S-KEY, H-PIN nor H-S-PIN movement), then adjust the vertical lines to eliminate lean.	To obtain the best possible lines, adjust the vertical lines in the center of the screen following the adjustment procedure of H-SKEW and H-BOW.
	H - BOW 	 V parabolic wave		 Attention point		Observe the vertical lines in the center of the screen, then adjust the bowed lines to straight lines.	
	H - KEY 	 V sawtooth wave × H sawtooth wave		 Attention point		Observe the vertical lines in the right section of the screen (where there is no H-S-KEY movement), then adjust the vertical lines to eliminate lean.	To eliminate lean, adjust the vertical lines in the right and left sections of the screen following the adjustment procedure of H-KEY and H-S-KEY.
	H - S - KEY 	 V sawtooth wave × 1/2 H sawtooth wave		 Attention point		Observe the vertical lines in the left section of the screen, then adjust the vertical lines to eliminate lean.	
	H - PIN 	 V parabolic wave × H sawtooth wave		 Attention point		Observe the vertical lines in the right and left sections of the screen, then adjust the bowed lines to symmetrize the right and left by H-S-PIN. And adjust the bowed vertical lines in the right and left sections of the screen to straight lines by H-PIN.	To eliminate distortion, straighten the vertical lines in the right and left sections of the screen following the adjustment procedure of H-PIN and H-S-PIN.
	H - S - PIN 	 V parabolic wave × H parabolic wave		 Attention point			

Compensation	Signal and mark *1	Compensating signal	Distorted screen
Horizontal interval compensation	H - LIN 	 H parabolic wave	
	H - S - LIN 	 H sine wave	
	H - SIZE 	 H sawtooth wave	
	H - POSITION	DC voltage	

Note : KEY is short for
and LIN for LINE
▽ : denotes points
▼ : denotes points
*1 : Sketch is printed o

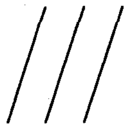
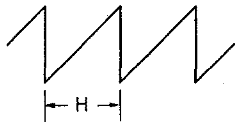
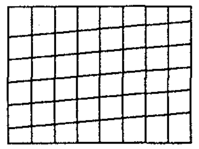
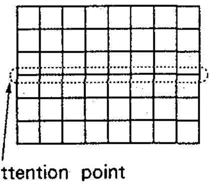
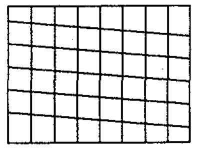
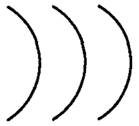
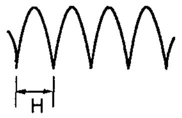
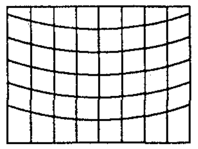
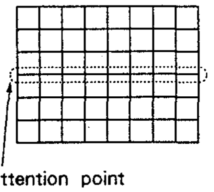
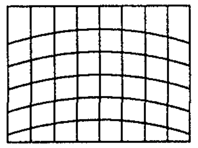
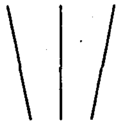
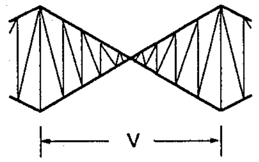
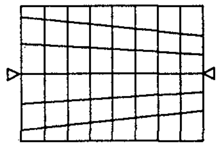
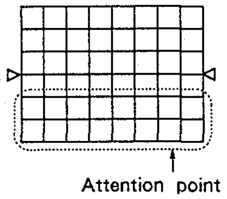
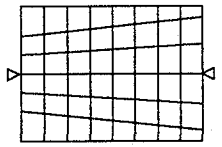
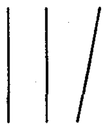
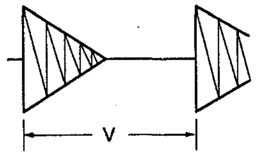
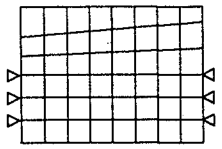
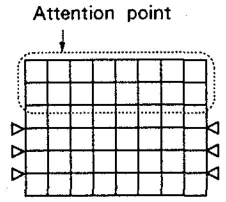
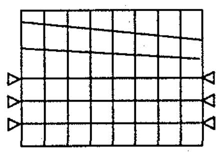
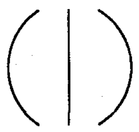
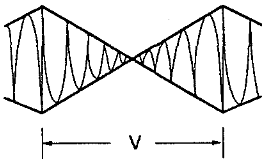
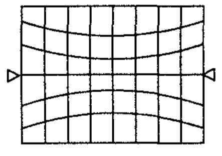
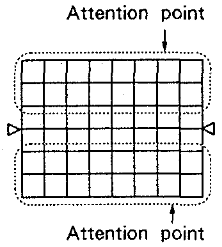
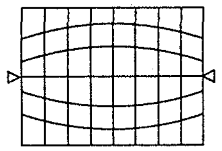
Fig. 9-4 Horizontal compensation

Distorted screen	Adjustment point	
	Observe the vertical lines in the center of the screen (where there is no H-KEY, H-S-KEY, H-PIN nor H-S-PIN movement), then adjust the vertical lines to eliminate lean.	To obtain the best possible lines, adjust the vertical lines in the center of the screen following the adjustment procedure of H-SKEW and H-BOW.
	Observe the vertical lines in the center of the screen, then adjust the bowed lines to straight lines.	
	Observe the vertical lines in the right section of the screen (where there is no H-S-KEY movement), then adjust the vertical lines to eliminate lean.	To eliminate lean, adjust the vertical lines in the right and left sections of the screen following the adjustment procedure of H-KEY and H-S-KEY.
	Observe the vertical lines in the left section of the screen, then adjust the vertical lines to eliminate lean.	
	Observe the vertical lines in the right and left sections of the screen, then adjust the bowed lines to symmetrize the right and left by H-S-PIN. And adjust the bowed vertical lines in the right and left sections of the screen to straight lines by H-PIN.	To eliminate distortion, straighten the vertical lines in the right and left sections of the screen following the adjustment procedure of H-PIN and H-S-PIN.
		

Compensation	Signal and mark *1	Compensating signal	Distorted screen	Corrected screen	Distorted screen	Adjustment point	
Horizontal interval compensation	H-LIN 	 H parabolic wave				Adjust following the adjustment procedure of H-LIN and H-S-LIN (remember the degree of H-SIZE movement) so that the interval between vertical lines on the right section is the same as on the left section, with a central point which does not move. For example, when the vertical lines in the right section of the screen are moved to right direction, move the vertical lines in the left section of the screen as same degree as the gap in the right section to the left direction.	The vertical lines in the center of the screen converge into the green lines by H-POSITION. And also, the vertical lines in the right and left sections of the screen converge into the green lines by H-LIN, H-S-LIN and H-SIZE.
	H-S-LIN 	 H sine wave					
	H-SIZE 	 H sawtooth wave				Converge the vertical lines in the right and left sections of the screen to green lines.	
	H-POSITION	DC voltage				The vertical lines of the screen move parallel on the right and left by the convergence control of the remote control or main unit. When the vertical line moves at will, consider the degree of movement.	

Note : KEY is short for KEYSTONE,
and LIN for LINEARITY
▽ : denotes points which do not move
▼ : denotes points which hardly move
*1 : Sketch is printed on the p.c. board.

Fig. 9-4 Horizontal compensation

Compensation	Signal and mark ＊1	Compensating signal	Distorted screen	Corrected screen	Distorted screen	Adjustment point	
Vertical distortion compensation	V－SKEW 	 H sawtooth wave				Observe the horizontal lines in the center of the screen (where there is no V-KEY, V-S-KEY nor V-PIN movement), then adjust the horizontal lines to eliminate lean.	To obtain the best possible lines, adjust the horizontal lines in the center of the screen following the adjustment procedure of V-SKEW and V-BOW.
	V－BOW 	 H parabolic wave				Observe the horizontal lines in the center of the screen, then adjust the bowed lines to straight lines.	
	V－KEY 	 V sawtooth wave × H sawtooth wave				Observe the horizontal lines in the lower section of the screen (where there is no V-S-KEY movement), then adjust the horizontal lines to eliminate lean.	To eliminate lean, adjust the horizontal lines in the upper and lower sections of the screen following the adjustment procedure of V-KEY and V-S-KEY.
	V－S－KEY 	 1/2 V sawtooth wave ×H sawtooth wave				Observe the horizontal lines in the upper section of the screen, then adjust the horizontal lines to eliminate lean.	
	V－PIN 	 V sawtooth wave × H parabolic wave				Observe the horizontal lines in the upper and lower sections of the screen, then adjust the bowed lines to straight lines.	To eliminate distortion, straighten the horizontal lines in the upper and lower sections of the screen following the adjustment procedure of V-PIN.

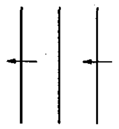
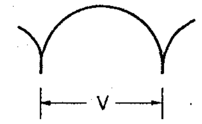
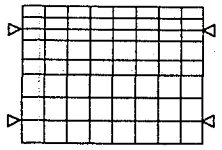
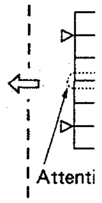
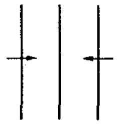
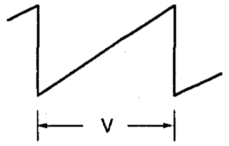
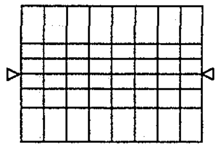
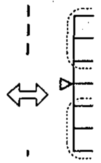
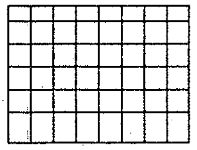
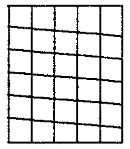
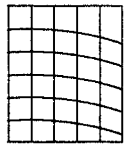
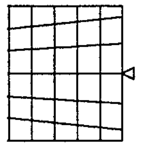
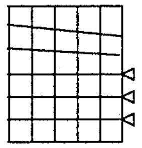
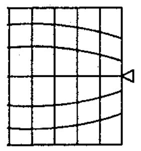
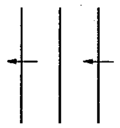
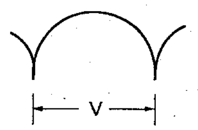
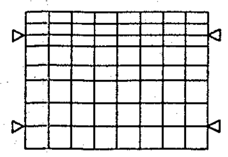
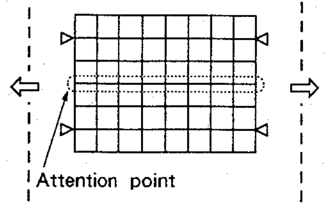
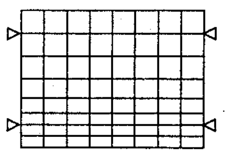
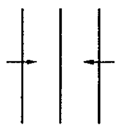
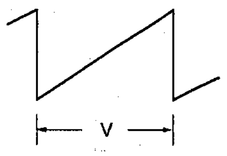
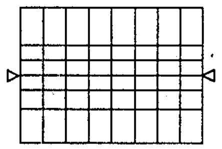
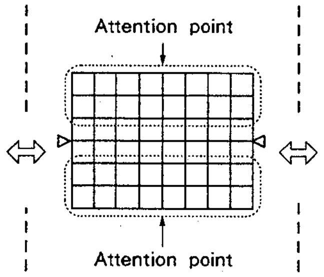
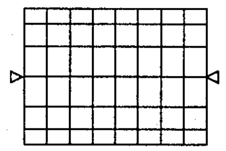
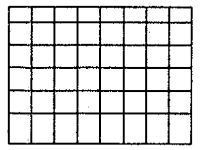
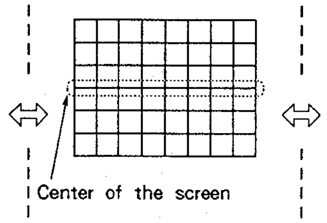
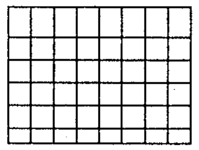
Compensation	Signal and mark ＊1	Compensating signal	Distorted screen	C
Vertical interval compensation	＊2 V－LIN 	 V parabolic wave		
	V－S－LIN	No adjustmen		
	V－SIZE 	 V sawtooth wave		
	V－POSITION	DC voltage		

Fig. 9-5 Vertical compensation

ted screen	Adjustment point	
	Observe the horizontal lines in the center of the screen (where there is no V-KEY, V-S-KEY nor V-PIN movement), then adjust the horizontal lines to eliminate lean.	To obtain the best possible lines, adjust the horizontal lines in the center of the screen following the adjustment procedure of V-SKEW and V-BOW.
	Observe the horizontal lines in the center of the screen, then adjust the bowed lines to straight lines.	
	Observe the horizontal lines in the lower section of the screen (where there is no V-S-KEY movement), then adjust the horizontal lines to eliminate lean.	To eliminate lean, adjust the horizontal lines in the upper and lower sections of the screen following the adjustment procedure of V-KEY and V-S-KEY.
	Observe the horizontal lines in the upper section of the screen, then adjust the horizontal lines to eliminate lean.	
	Observe the horizontal lines in the upper and lower sections of the screen, then adjust the bowed lines to straight lines.	To eliminate distortion, straighten the horizontal lines in the upper and lower sections of the screen following the adjustment procedure of V-PIN.

Compensation	Signal and mark *1	Compensating signal	Distorted screen	Corrected screen	Distorted screen	Adjustment point	
Vertical interval compensation	*2 V-LIN 	 V parabolic wave				Converge the horizontal lines in the center of the screen into green lines. At this time, be sure to the same horizontal line interval as upper section as lower section about a central point. However, if the same interval is not to obtained, adjust POSITION and adjust V-LIN again.	The horizontal lines in the center of the screen converge into the green line by V-LIN and V-POSITION. And also the horizontal lines in the upper and lower sections of the screen converge into the green line by V-SIZE.
	V-S-LIN	No adjustment				——	
	V-SIZE 	 V sawtooth wave				Converge the horizontal lines in the upper and lower sections of the screen into green lines.	
	V-POSITION	DC voltage				The horizontal lines of the screen move parallel on the upper and lower by the convergence control of the remote control or main unit. When the horizontal line moves at will, consider the degree of movement.	

Note : KEY is short for KEYSTONE, and LIN for LINEARITY.
▽ : denotes points which do not move.
*1 : Sketch is printed on the P.C. board.
*2 : The movement of V-LIN is the same as the SD-P40/KU.

Fig. 9-5 Vertical compensation

9.9 WHEN FRONT CONTROL ASSEMBLY IS REPAIRED

Step No.	Adjustment item	Input signal	Adjustment point	Adjustment procedure
1	DPO sensitivity adjustment	Adjust DPO sensitivity adjustment as described in section 9.18.		

9.10 WHEN FRONT CONTROL ASSEMBLY IS REPLACED

- No adjustment required.

9.11 WHEN R, G, OR B CRT DRIVE ASSEMBLY IS REPAIRED OR REPLACED

- White balance should require very little adjustment, but if necessary, adjust as described in Section "9.1 When POWER SUPPLY • DEFLECTION assembly is repaired".

9.12 WHEN SUB DEFLECTION ASSEMBLY IS REPAIRED OR REPLACED

- Adjust the horizontal size as described in section 9.1.2, and confirm the vertical size and convergence.

9.13 WHEN CRT ASSEMBLY R, G, OR B IS REPLACED

- The CRT assembly R, G, B replacement procedure is described in Section "10. Replacing the CRT assembly"
- When one or two tubes are replaced, match the new tubes with the remaining tube. If all three tubes are replaced, first adjust G, and then match the other two tubes with the G tube.

Step No.	Adjustment item	Input signal	Adjustment point	Adjustment procedure
1	Deflection yoke angle and centering adjustment	Cross signal (or apply any signal, and generate a test cross signal as described in section 9.8.2.)	Centering magnet of deflection yoke of replaced CRT assembly (Refer to Fig. 9-10)	Adjust the deflection yoke angle until the color cross of the replaced CRT assembly is parallel with the color cross of a CRT assembly which has not been replaced.
				Reset the convergence position (once activate and deactivate FACTORY ADJ mode) when the replaced CRT assembly is red or blue.
				Adjust the centering magnet of the deflection yoke in the replaced CRT assembly until cross becomes converge.
2	Focus adjustment	Cross hatch	Replaced color focus VR (VR1) and lens assembly connected to replaced CRT assembly (Refer to Fig. 9-8 and Fig. 9-11)	Adjust the focus of the replaced CRT assembly to optimum condition. (Shifting the convergence position may provide easier observation. Be sure to return it to the original position after the adjustment is completed.)
3	Convergence adjustment		Match the color convergence of the replaced CRT assembly with the color an assembly which has not been replaced. See Section 9.8.3 CONVERGENCE ADJUSTMENT for details on the matching procedure. (When CRT assembly G is replaced, match the color convergence of the R, G and B.)	
4	White balance	Color bar signal without color signal	Screen VR (VR1) VR105 (R) } Drive VR (V) VR104 (B)	Set the picture quality to standard by remote control.
				Adjust the replaced color screen VR until grey can be seen in the color of dark area.
				Adjust the replaced color drive VR until the color of bright area becomes white. (When CRT assembly G is replaced, slightly adjust the drive VR [R] and [B].)
				Adjust the PIONEER Standard brightness only when the above adjustments have not been successfully effectuated due to the abnormal brightness.
5	PIONEER standard	Adjust as described in steps 4 thru 10 in Section 9.3.3. Also make the VNR settings according to 9.3.3 when required.		

9.14 WHEN LENS ASSEMBLY IS REPLACED

- Remove the lenticular sheet, and attach tracing paper with a plastic tape, etc. instead. (Refer to Fig. 9-11.) Adjust the focus of the lens assembly newly mounted, by observing the picture shown on the tracing paper.

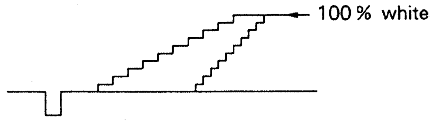
9.15 WHEN PINP OR PINP SUB ASSEMBLIES ARE REPAIRED OR REPLACED (SD-P4043-K ONLY)

- Perform this adjustment after completing the assembly adjustments except the PINP assembly and PINP SUB assembly.

*1: Supply the same signal to both the main and sub pictures.

*2:

- When IC934 (TMC3499PJ) is replaced, perform the adjustment item in step 1 thru 3. In the other case, perform the adjustment from step 4.
- When performing the adjustment in step 1 thru 3, remove the shield cover that cover the IC934 (TMC3499PJ).

Step No.	Adjustment item	*1 Input signal	Adjustment point	Adjustment procedure
1 *2	PLL lock voltage of position setting of the sub-picture	Color bar	TC931 (P)	Adjust the DC voltage between pin 1 of IC934 (or + side of C114) and GND to 2.5V ± 0.3V.
2 *2	PLL lock voltage of chroma regeneration of the sub-picture	Color bar	TC932 (P)	Adjust the DC voltage between pin 92 of IC934 (or lead of R1741 at pin 92 side) and GND to 2.5V ± 0.4V.
3 *2	PLL lock voltage for writing the sub-picture	Monoscope signal	TC933 (P)	Adjust the DC voltage between pin 65 of IC934 (or lead of R1713 at pin 65 side) and GND to 2.5V ± 0.3V. After adjustment, when monoscope 95% line of sub-picture will be seen, readjust to the limits of $2.5V^{+0.3V}_{-0.5V}$. Shift the center of monoscope to the right so that the 95% line is disappeared.
4	Contrast adjustment of sub-picture	10 step scale signal	VR931 (P)	Observe the waveform at pin 7 (Y OUT) of connector W3 of the PINP assembly and adjust the 100% white position of the sub picture so that it aligns with that of the main picture. 
5	White balance adjustment of sub-picture	100 % white	VR935 (P)	Adjust the white in the sub picture so that it becomes the same as that in the main picture.
6	Tint adjustment of sub-picture	Color bar	VR933 (P)	Adjust the color level of the sub picture so that it becomes the same as that of the main picture.
			VR934 (P)	Adjust the TINT of the sub picture so that it becomes the same as that of the main picture.

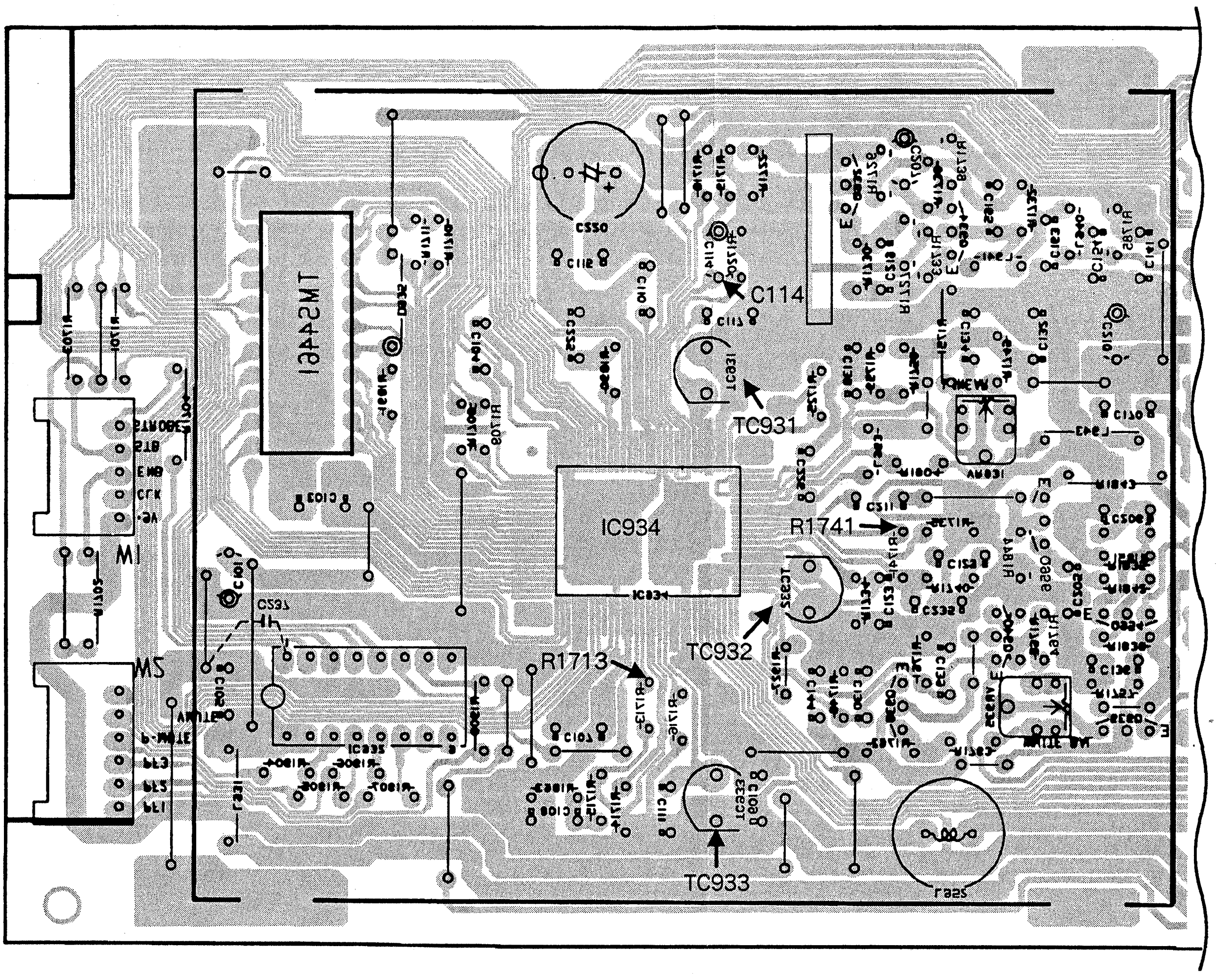


Fig. 9-6 Adjustment points of PINP assembly

9.16 WHEN OTHER ASSEMBLIES ARE REPAIRED OR REPLACED

- No adjustment required.

9.17

The DP
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(S869)
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There a
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DARK) i
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Hence, i
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To stor
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to chan

- DPO
  COLO
  CONT
  BRIT
- DPO
  COLO
  CONT
  BRIT

Note: F
a

9.18

The se
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which
is made
(refer t
to the c
used a

'LACED

(or + side of C114)
4 (or lead of R1741
4 (or lead of R1713 r adjustment, when :en, readjust to the ɔpe to the right so
ɔnnector W3 of the osition of the sub ain picture.
hite
becomes the same
hat it becomes the
becomes the same

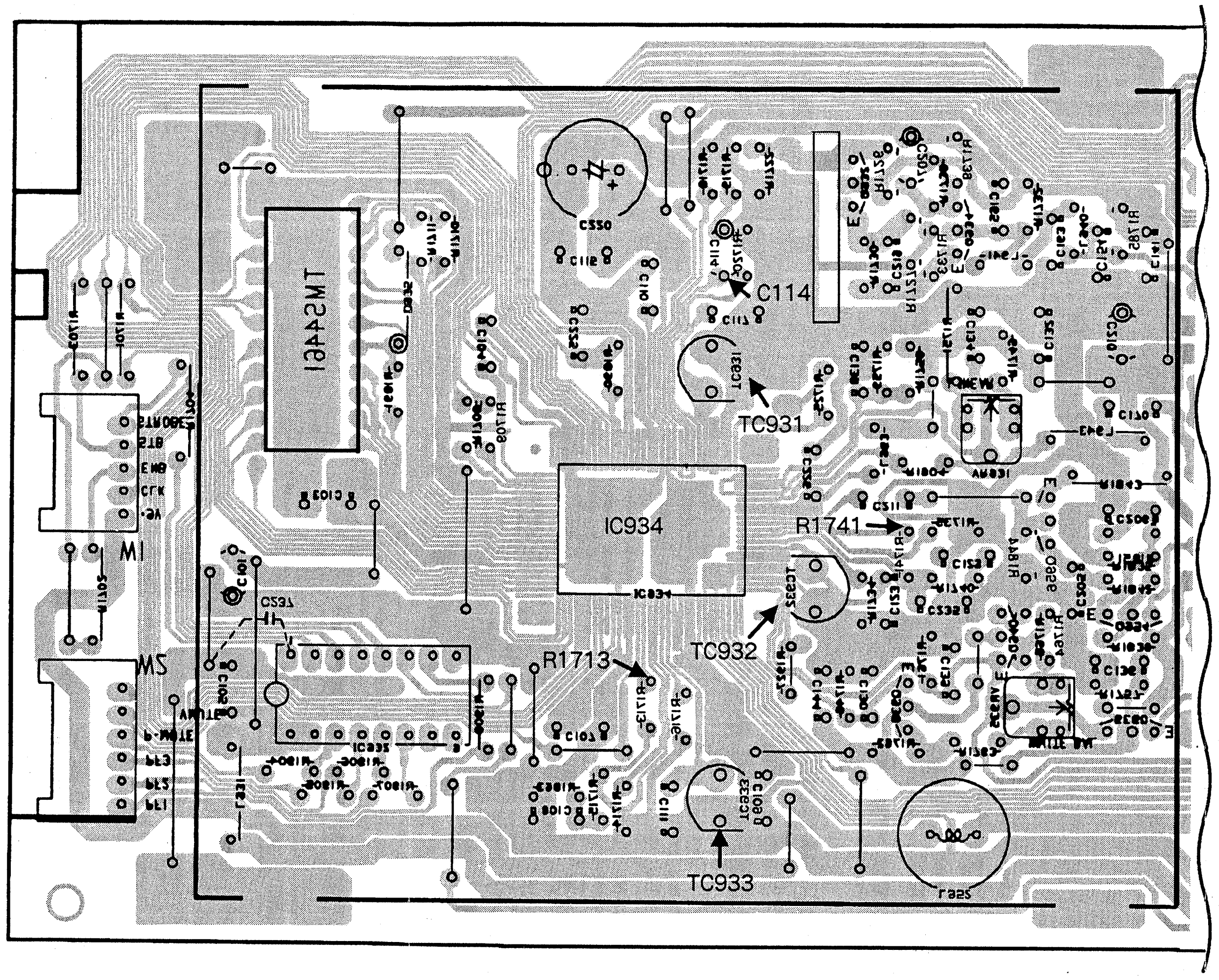


Fig. 9-6 Adjustment points of PINP assembly

9.16 WHEN OTHER ASSEMBLIES ARE REPAIRED OR REPLACED

- No adjustment required.

9.17 DPO BASE SETTING

The DPO function features a DPO light-sensitive section in the front control panel designed to judge the level of external light when the front panel DPO switch (S869) in ON, thereby matching the PROJECTION MONITOR RECEIVER picture quality (contrast, color, bright) with the external light.

There are two STANDARD kinds of DPO picture qualities. When the environment is bright, the first DPO quality (DPO LIGHT) is selected. When the environment is dark, the second DPO quality (DPO DARK) is selected. The data on these two DPO qualities are stored in IC402 (non-volatile memory).

Hence, if IC402 (or peripheral circuits) is repaired or replaced, or if VERTICAL・VIDEO・AUDIO assembly is replaced, picture quality must be stored in IC402 again. To store the DPO picture quality data, refer to the operating instructions. The values set at the factory are shown here for reference. These values are subject to change.

- DPO LIGHT
  COLOR : 0
  CONTR : 0
  BRITE : 0
- DPO DARK
  COLOR : −2
  CONTR : −15
  BRITE : +3

Note: For this adjustment, it is not necessary to activate FACTORY ADJ mode.

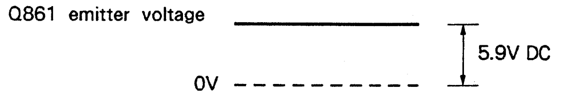
9.18 DPO SENSITIVITY ADJUSTMENT

The sensitivity of the DPO light-sensitive section is adjusted to determine the level of external light at which the DPO feature is activated. This adjustment is made by VR861 in the FRONT CONTROL assembly (refer to Fig. 9-7), and should be carried out according to the customer's preferences. The adjustment procedure used at the factory is given for reference.

(1) Using an incandescent light bulb as the light source, light is beamed directly into the DPO light sensitive section with a light-intensity level of 50 lux at the DPO.

(2) Switch the DPO switch (S869) on. "DPO ON" indicate in the screen.

(3) FRONT CONTROL assembly VR861 is adjusted to obtain a voltage of 5.9V (± 0.1V) at the Q861 emitter.



9.19 ANODE CABLE CONNECTION AND DISCONNECTION

SERVICEMAN WARNING

Before removing the anode cable, turn off the power, unplug the AC plug and let the unit discharge for more than 1 minute.

Disconnect the FBT anode cable as outlined in Fig. 9-7. Confirm the extension of the rubber cover before disconnecting the cable, then it is easy to connect the anode cable after the anode voltage is measured. When connecting the anode cable, proceed in the reverse order as mentioned above. Confirm that the cable will not come off by pulling it after the cable is connected.

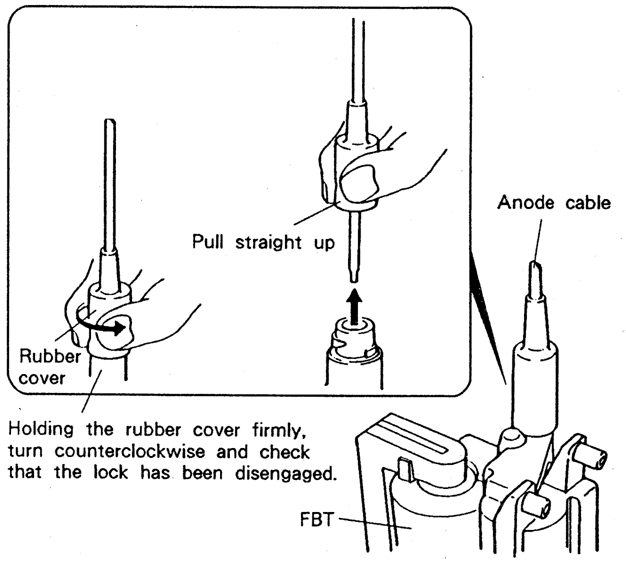
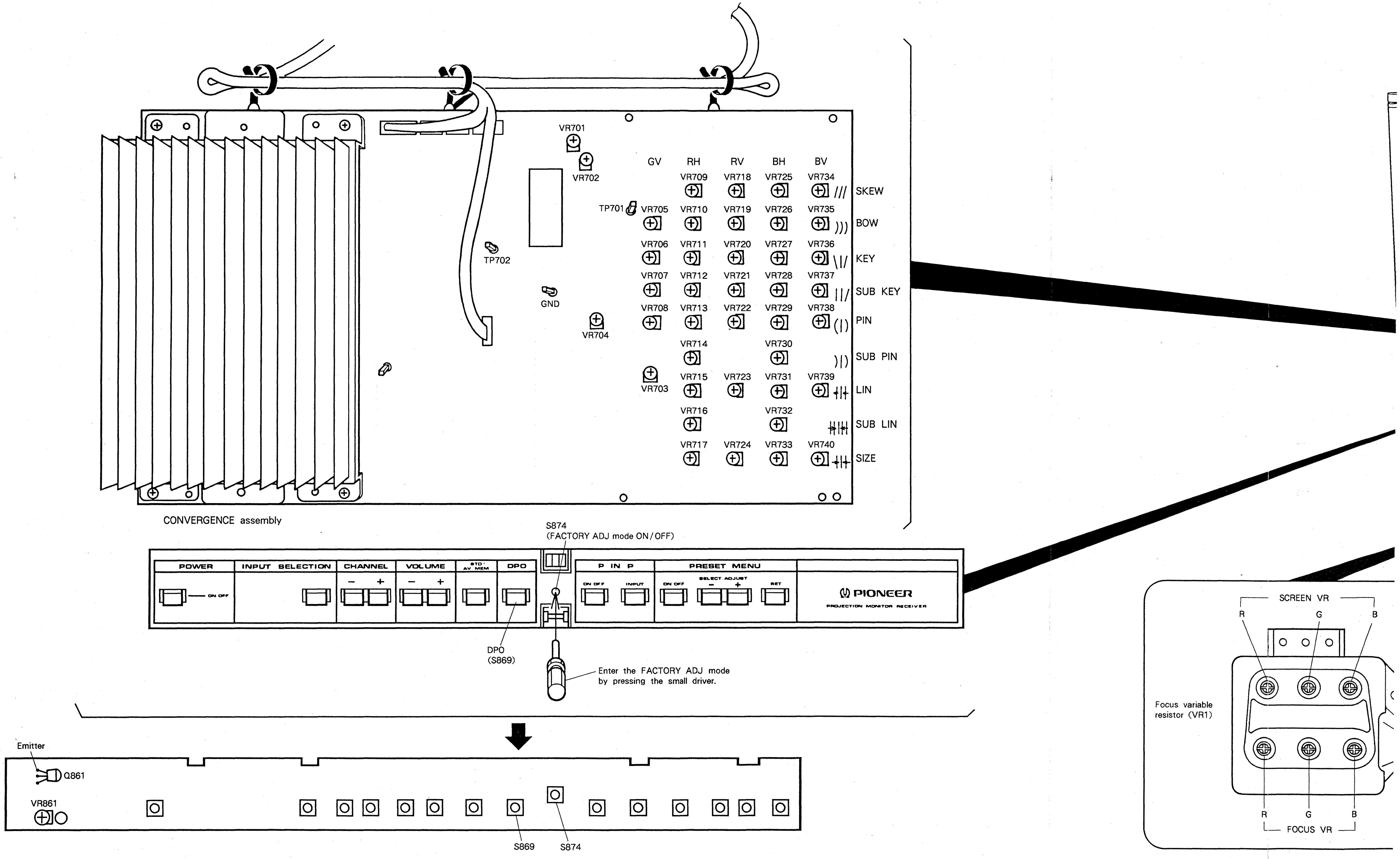

Anode cable
Pull straight up
Rubber cover
Holding the rubber cover firmly, turn counterclockwise and check that the lock has been disengaged.
FBT

Fig. 9-7 Disconnecting the anode cable


VR701
VR702
TP701
TP702
GND
VR704
VR703
GV
RH
RV
BH
BV
VR709
VR718
VR725
VR734
SKEW
VR705
VR710
VR719
VR726
VR735
BOW
VR706
VR711
VR720
VR727
VR736
KEY
VR707
VR712
VR721
VR728
VR737
SUB KEY
VR708
VR713
VR722
VR729
VR738
PIN
VR714
VR730
SUB PIN
VR715
VR723
VR731
VR739
LIN
VR716
VR732
SUB LIN
VR717
VR724
VR733
VR740
SIZE
CONVERGENCE assembly
S874
(FACTORY ADJ mode ON/OFF)
POWER
ON OFF
INPUT SELECTION
CHANNEL
– +
VOLUME
– +
STD·AV MEM
DPO
P IN P
ON OFF
INPUT
PRESET MENU
ON OFF
SELECT ADJUST
– +
SET
PIONEER
PROJECTION MONITOR RECEIVER
DPO
(S869)
Enter the FACTORY ADJ mode
by pressing the small driver.
Emitter
Q861
VR861
S869
S874
SCREEN VR
R
G
B
Focus variable
resistor (VR1)
R
G
B
FOCUS VR

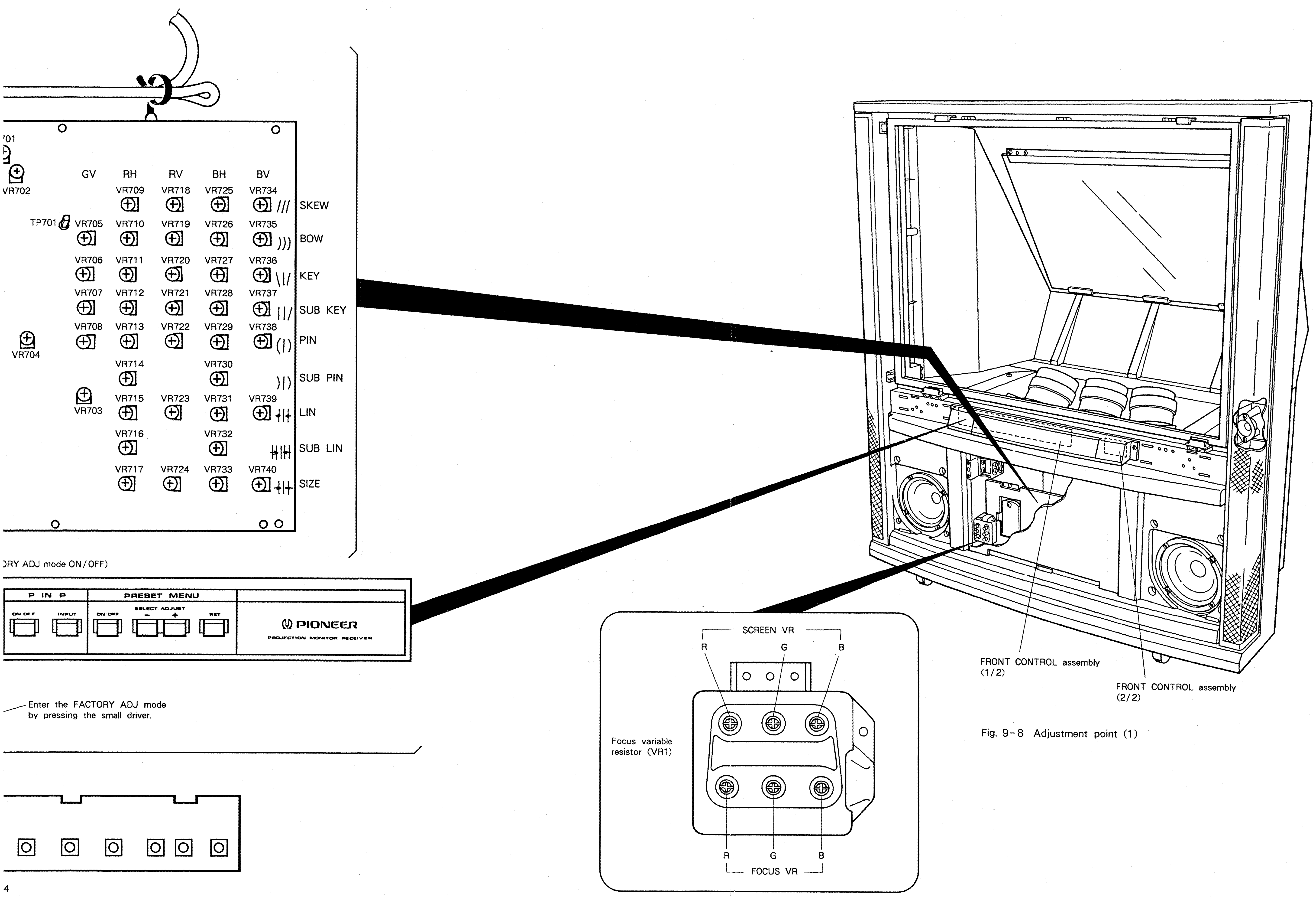

'01
VR702
GV
RH
RV
BH
BV
VR709
VR718
VR725
VR734
SKEW
TP701
VR705
VR710
VR719
VR726
VR735
BOW
VR706
VR711
VR720
VR727
VR736
KEY
VR707
VR712
VR721
VR728
VR737
SUB KEY
VR708
VR713
VR722
VR729
VR738
PIN
VR704
VR714
VR730
SUB PIN
VR703
VR715
VR723
VR731
VR739
LIN
VR716
VR732
SUB LIN
VR717
VR724
VR733
VR740
SIZE
)RY ADJ mode ON/OFF)
P IN P
PRESET MENU
ON OFF
INPUT
ON OFF
SELECT ADJUST
−
+
SET
PIONEER
PROJECTION MONITOR RECEIVER
Enter the FACTORY ADJ mode by pressing the small driver.
SCREEN VR
R
G
B
Focus variable resistor (VR1)
R
G
B
FOCUS VR
FRONT CONTROL assembly (1/2)
FRONT CONTROL assembly (2/2)

Fig. 9-8 Adjustment point (1)

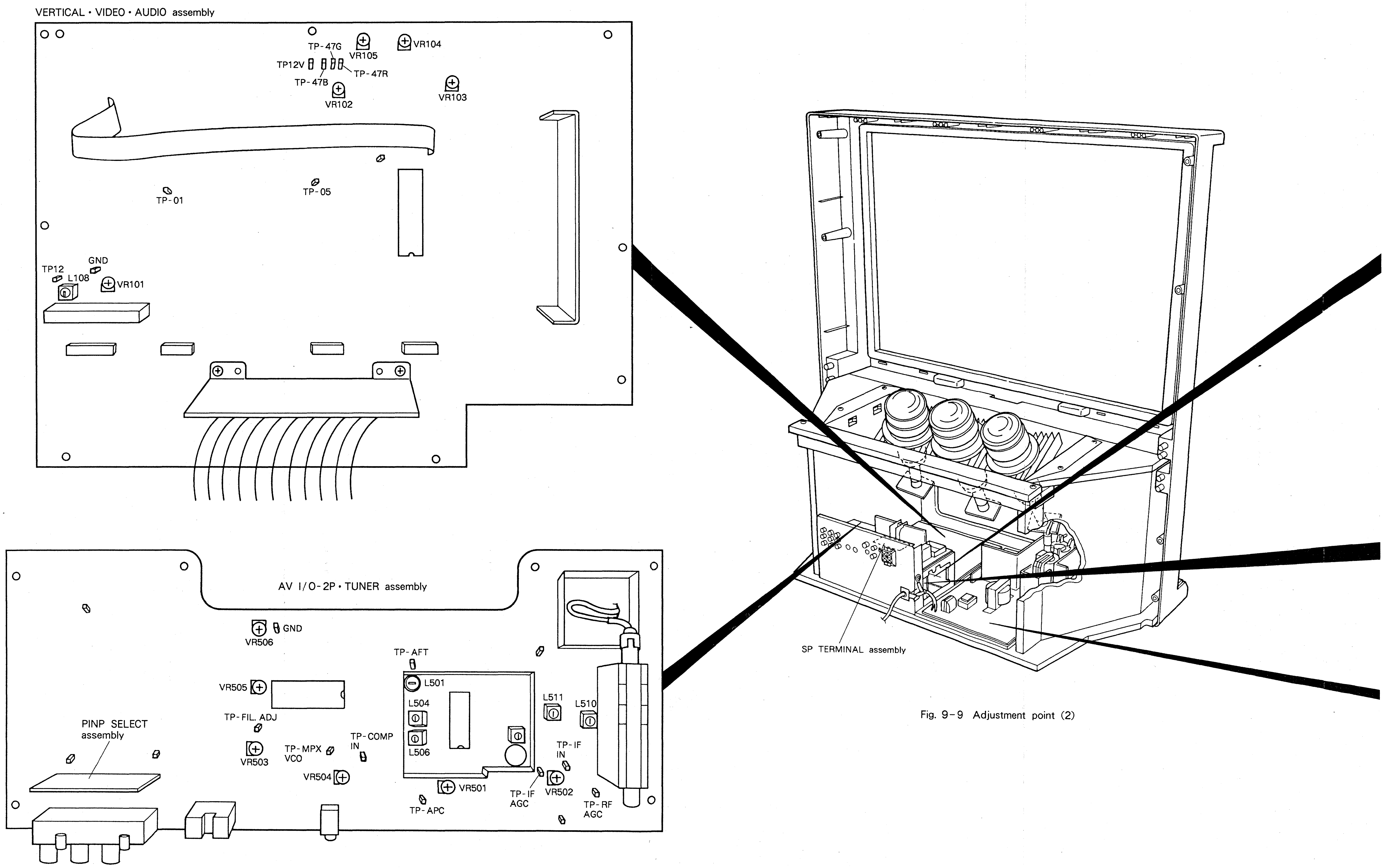
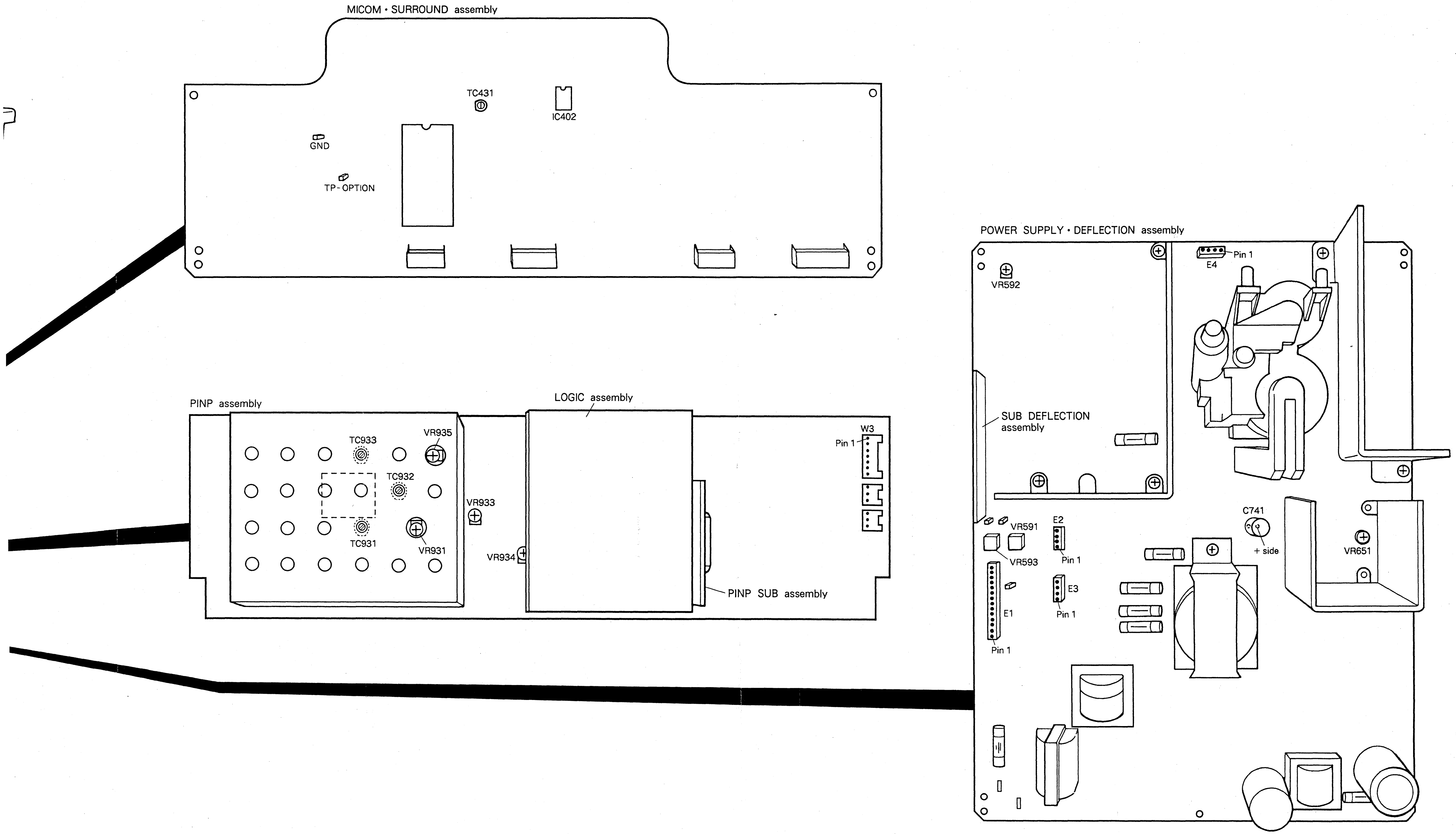

VERTICAL • VIDEO • AUDIO assembly
TP-47G
VR105
VR104
TP12V
TP-47R
TP-47B
VR102
VR103
TP-01
TP-05
GND
TP12
L108
VR101
AV I/O-2P • TUNER assembly
VR506
GND
TP-AFT
VR505
L501
L504
L511
L510
TP-FIL. ADJ
PINP SELECT assembly
TP-COMP IN
TP-MPX VCO
VR503
L506
TP-IF IN
VR504
VR501
TP-IF AGC
VR502
TP-RF AGC
TP-APC
SP TERMINAL assembly

Fig. 9-9 Adjustment point (2)


MICOM • SURROUND assembly
TC431
IC402
GND
TP-OPTION
PINP assembly
TC933
VR935
TC932
TC931
VR931
VR933
VR934
LOGIC assembly
W3
Pin 1
PINP SUB assembly
POWER SUPPLY • DEFLECTION assembly
Pin 1
E4
VR592
SUB DEFLECTION assembly
C741
VR591
E2
VR593
Pin 1
+ side
VR651
E3
E1
Pin 1
Pin 1

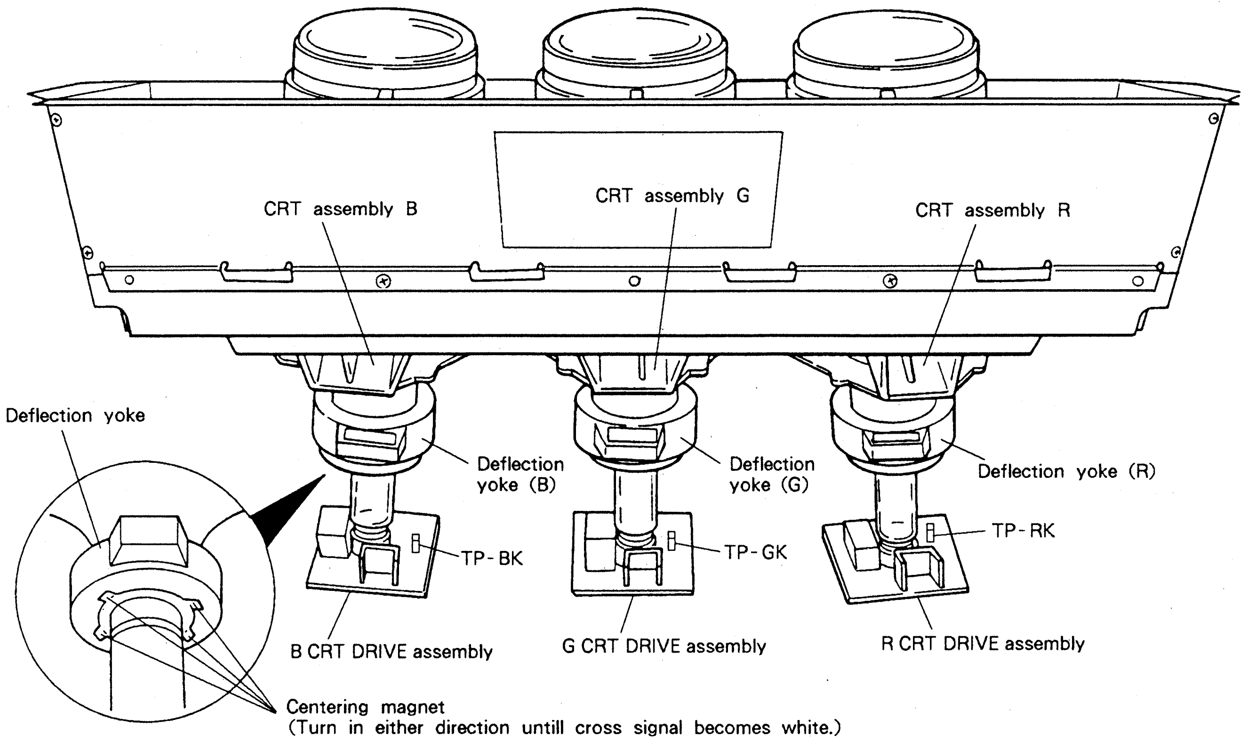

CRT assembly B
CRT assembly G
CRT assembly R
Deflection yoke
Deflection yoke (B)
Deflection yoke (G)
Deflection yoke (R)
TP-BK
TP-GK
TP-RK
B CRT DRIVE assembly
G CRT DRIVE assembly
R CRT DRIVE assembly
Centering magnet
(Turn in either direction untill cross signal becomes white.)

Fig. 9-10 Adjustment point (3)

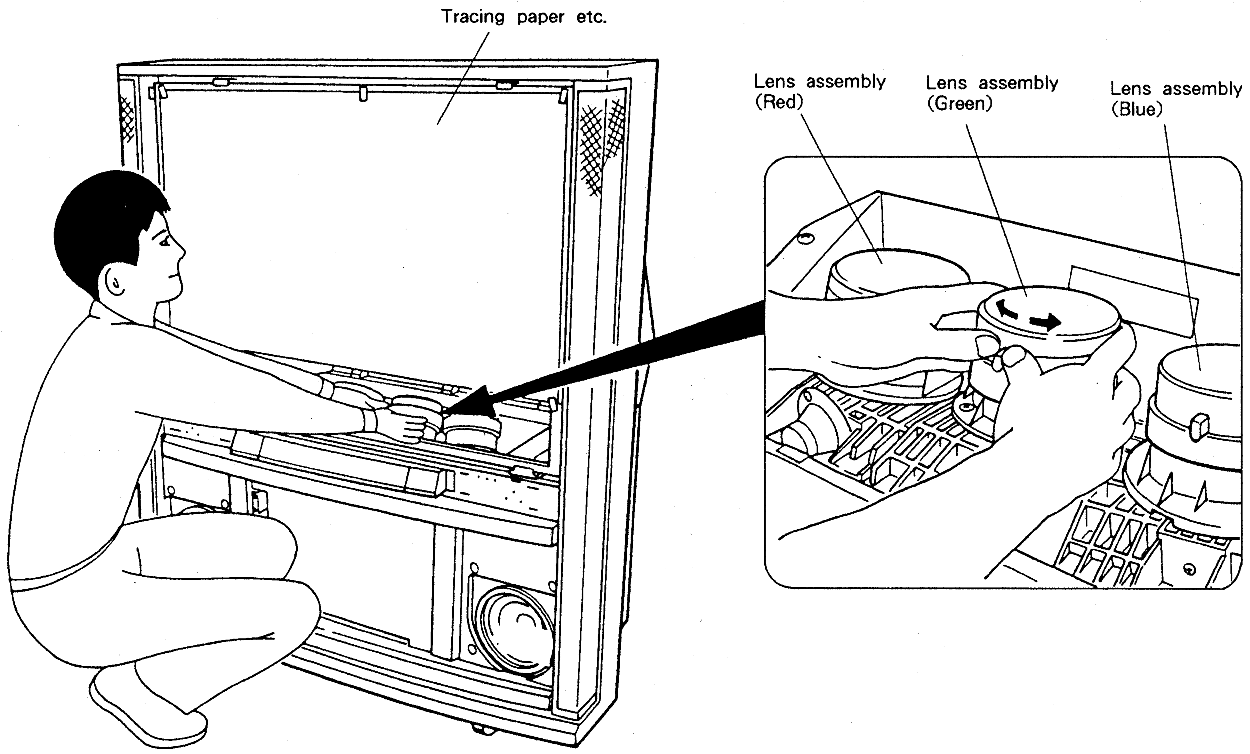

Tracing paper etc.
Lens assembly (Red)
Lens assembly (Green)
Lens assembly (Blue)

Fig. 9-11 Adjustment point (4)

10. REPLACING THE CRT ASSEMBLY

Serviceman Warning

When replacing the CRT assembly, turn off the power, unplug the AC plug and let the unit discharge for more than 1 minute.

The anode cables of the CRT assembly R, G, and B in PROJECTION MONITOR RECEIVER are connected in series as shown in Fig. 10-1.
When replacing the CRT assembly, the anode cable have to be cut.

Note: Since the anode cables for the CRT assembly to service supplies are only available in half lengths, either cut longer lengths, or join older lengths of cable to ensure that the original cable length is used.

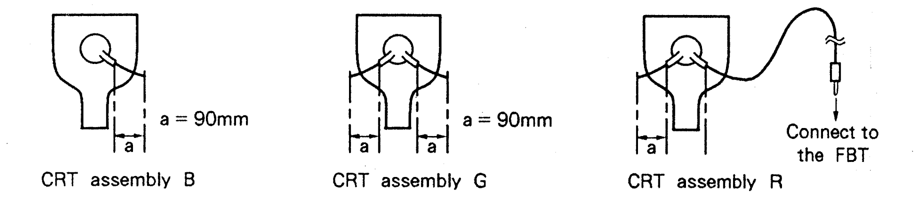
Table 10-1 Cable disconnecting methods

Cable	Replacement CRT assembly		
	When CRT assembly B is replaced	When CRT assembly G is replaced	When CRT assembly R is replaced
Cable ⓐ	——	——	Disconnect the anode cable from the FBT.(Refer to section "9.19 Anode cable connection and disconnection".)
Cable ⓑ	Leave as is	Cut a place 20mm from the exact center towards the CRT assembly G	Cut a place 20mm from the exact center towards the CRT assembly R
Cable ⓒ	Cut a place 20mm from the exact center towards the CRT assembly B	Cut a place 20mm from the exact center towards the CRT assembly G	Leave as is

Note : Do not cut other cables by mistake.

10.1 WHEN REPLACING THE CRT ASSEMBLY

Each CRT assembly supplied as a spare part is as shown below.


a = 90mm
a
CRT assembly B
a = 90mm
a
a
CRT assembly G
a
Connect to the FBT
CRT assembly R

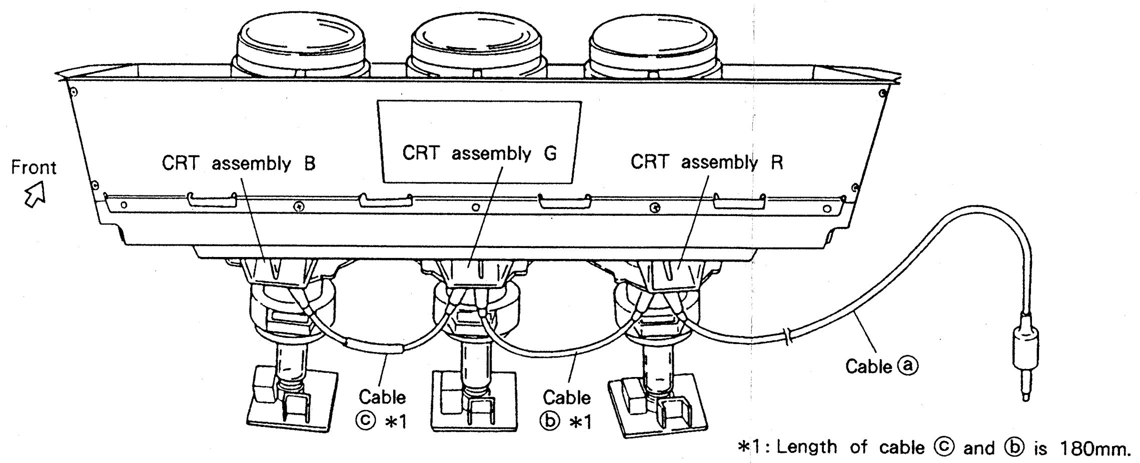

Front
CRT assembly B
CRT assembly G
CRT assembly R
Cable ⓐ
Cable ⓒ *1
Cable ⓑ *1
*1: Length of cable ⓒ and ⓑ is 180mm.

Fig. 10-1 Connection diagram of the each CRT assemblies

10.2 ANODE

- Peel the sheath
new anode cabl
- The anode cable
Note that the s
- The method used
in Fig. 10-3. Use
damage the cor

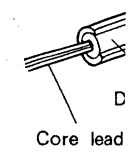


Fig. 10-2

10.3 ANODE

- Join the cut an
to restored as
replacing the FB
connection and
- Slip two silicon
10-4) onto the
- Leave the silic

more

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Anode
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10.2 ANODE CABLE SHEATH PEELING

- Peel the sheath of the end of cut anode cable and new anode cable are as follows.
- The anode cable structure is outlined in Fig. 10-2. Note that the sheath consists of two layers.
- The method used to peel the sheath back is illustrated in Fig. 10-3. Use a cutter knife, taking care not to damage the core leads.

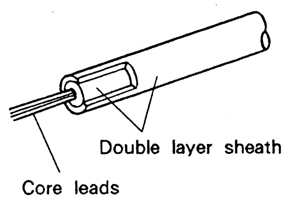
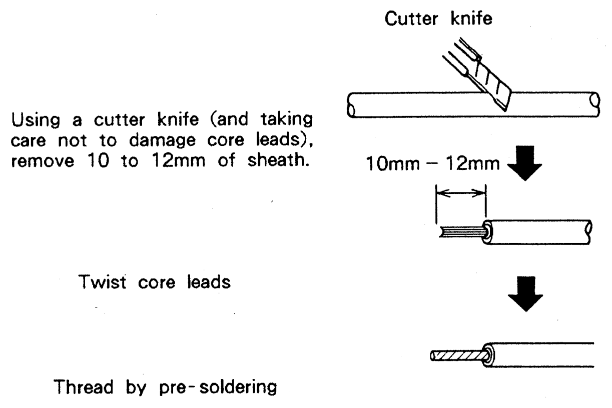

Double layer sheath
Core leads

Fig. 10-2 Anode cable structure


Cutter knife
10mm – 12mm

Using a cutter knife (and taking care not to damage core leads), remove 10 to 12mm of sheath.

Twist core leads

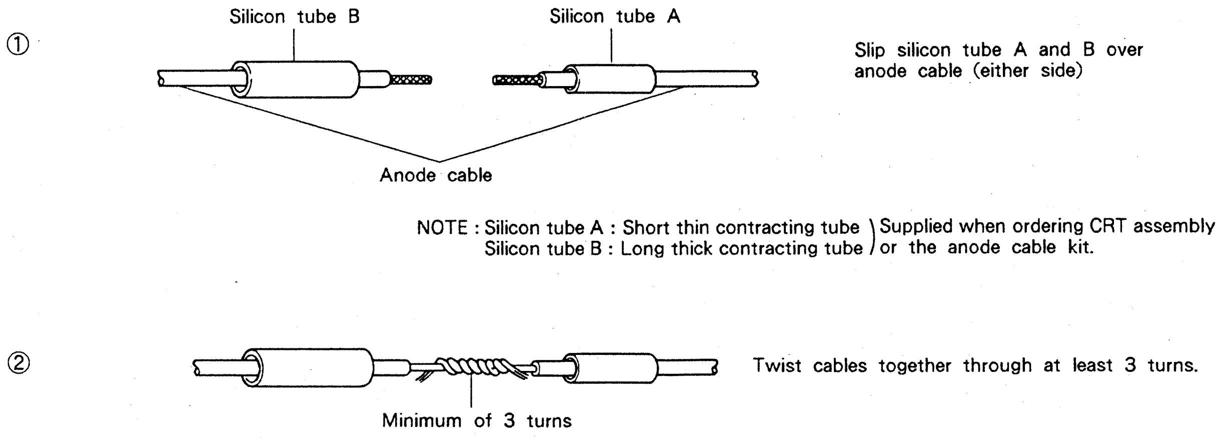
Thread by pre-soldering

Fig. 10-3 Anode cable sheath peeling

10.3 ANODE CABLE JOINING PROCEDURE

- Join the cut anode cable and the new anode cable to restored as shown in Fig. 10-1. Also, when replacing the FBT, refer to section 9.19 "Anode cable connection and disconnection".
- Slip two silicon tubes (silicon tubes A and B in Fig. 10-4) onto the anode cables before making the join.
- Leave the silicon adhesive to harden overnight.
- The silicon adhesive is applied to guard the cable core leads from external air. Apply binder liberally. After completing the joint (at step ⑩ in Fig. 10-4-1 thru 3), make a hole in the silicon adhesive and check that the tube interior cannot be seen.

CAUTION: For the silicon adhesive, be sure to use silicon adhesive part no. GYL-017.

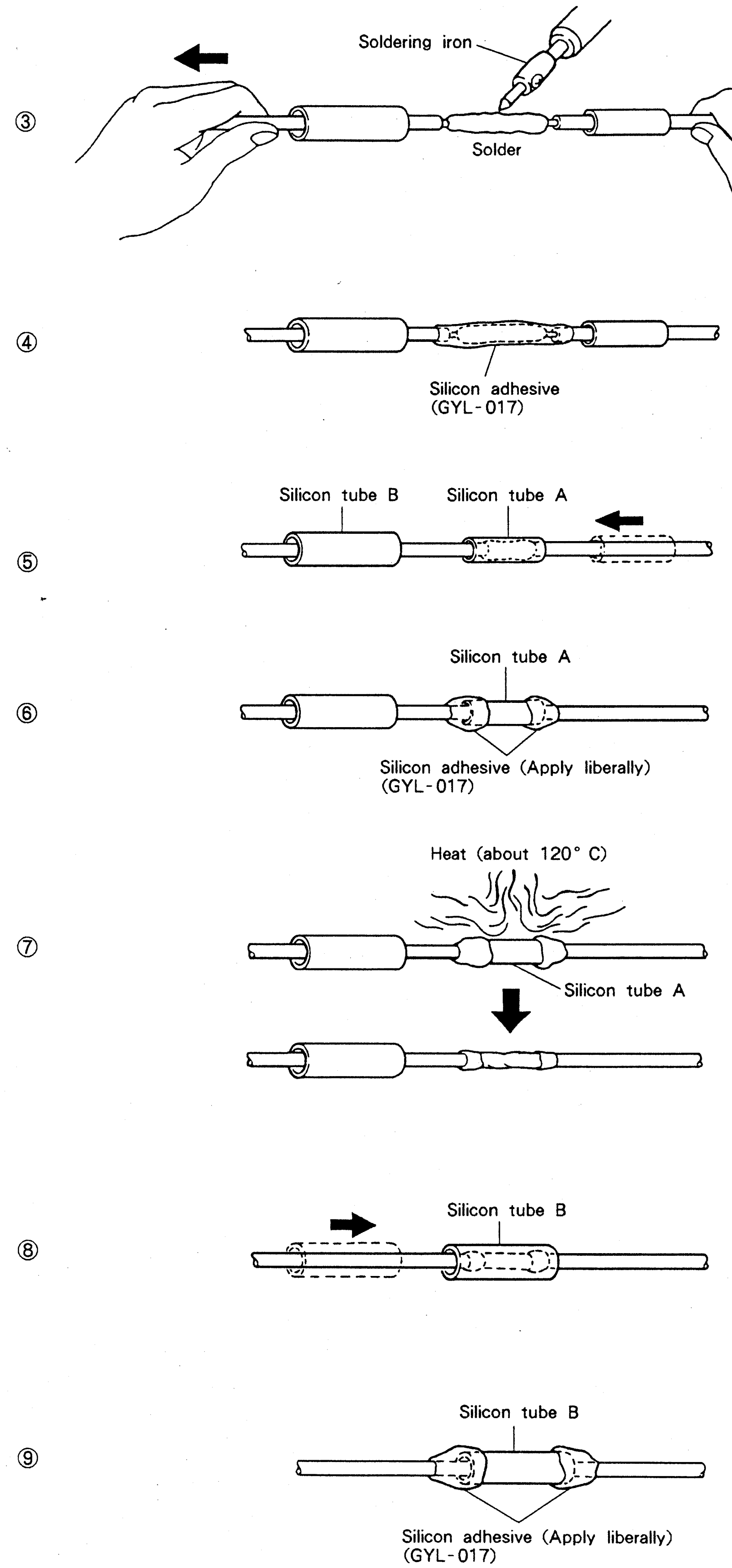

①
Silicon tube B
Silicon tube A
Anode cable
②
Minimum of 3 turns

① Slip silicon tube A and B over anode cable (either side)

NOTE : Silicon tube A : Short thin contracting tube } Supplied when ordering CRT assembly
Silicon tube B : Long thick contracting tube } or the anode cable kit.

② Twist cables together through at least 3 turns.

Fig. 10-4-1 Anode cable joining procedure (1)


③
Soldering iron
Solder
④
Silicon adhesive
(GYL-017)
⑤
Silicon tube B
Silicon tube A
⑥
Silicon tube A
Silicon adhesive (Apply liberally)
(GYL-017)
⑦
Heat (about 120° C)
Silicon tube A
⑧
Silicon tube B
⑨
Silicon tube B
Silicon adhesive (Apply liberally)
(GYL-017)

③ Solder the joint, and pull at both ends.
(Check against faulty soldering.)

④ Apply silicon adhesive liberally.
(Cover the entire soldered section and remaining bare core leads.)

⑤ Cover the silicon adhesive section with silicon tube A.
(With the center of the silicon tube A corresponding to the binder section)

⑥ Apply liberal amounts of silicon adhesive to both ends of silicon tube A

⑦ Apply heat (about 120° C) to contract silicon tube A.

Note : Use an industrial drier or soldering iron as the heat source.

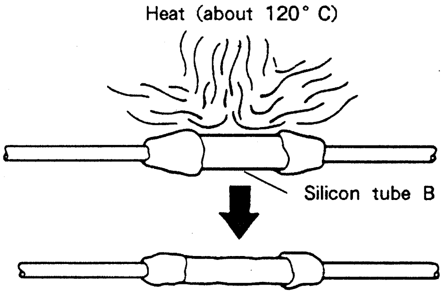
Check that the silicon adhesive has been applied evenly without air pockets etc. If there are any pockets etc, apply additional silicon adhesive.

⑧ Slip silicon tube B over silicon tube A.
(With the center of silicon tube B also corresponding to the binder section)

⑨ Apply liberal amounts of silicon adhesive to both ends of silicon tube B.

Fig. 10-4-2 Anode cable joining procedure (2)

⑩

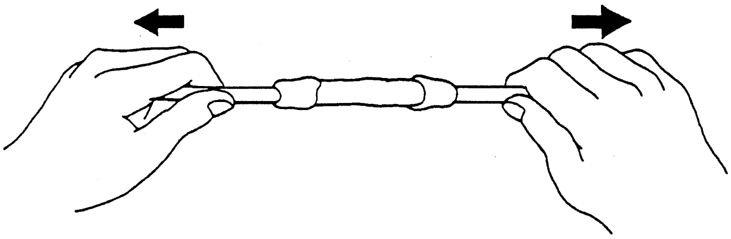


Apply heat (about 120° C) to contract silicon tube B.

Note : Use an industrial drier or soldering iron as the heat source.

Check that the silicon adhesive has been applied evenly without air pockets etc. If there are any pockets etc, apply additional silicon adhesive.

⑪



Gently tug both ends to check that the cables do not separate.

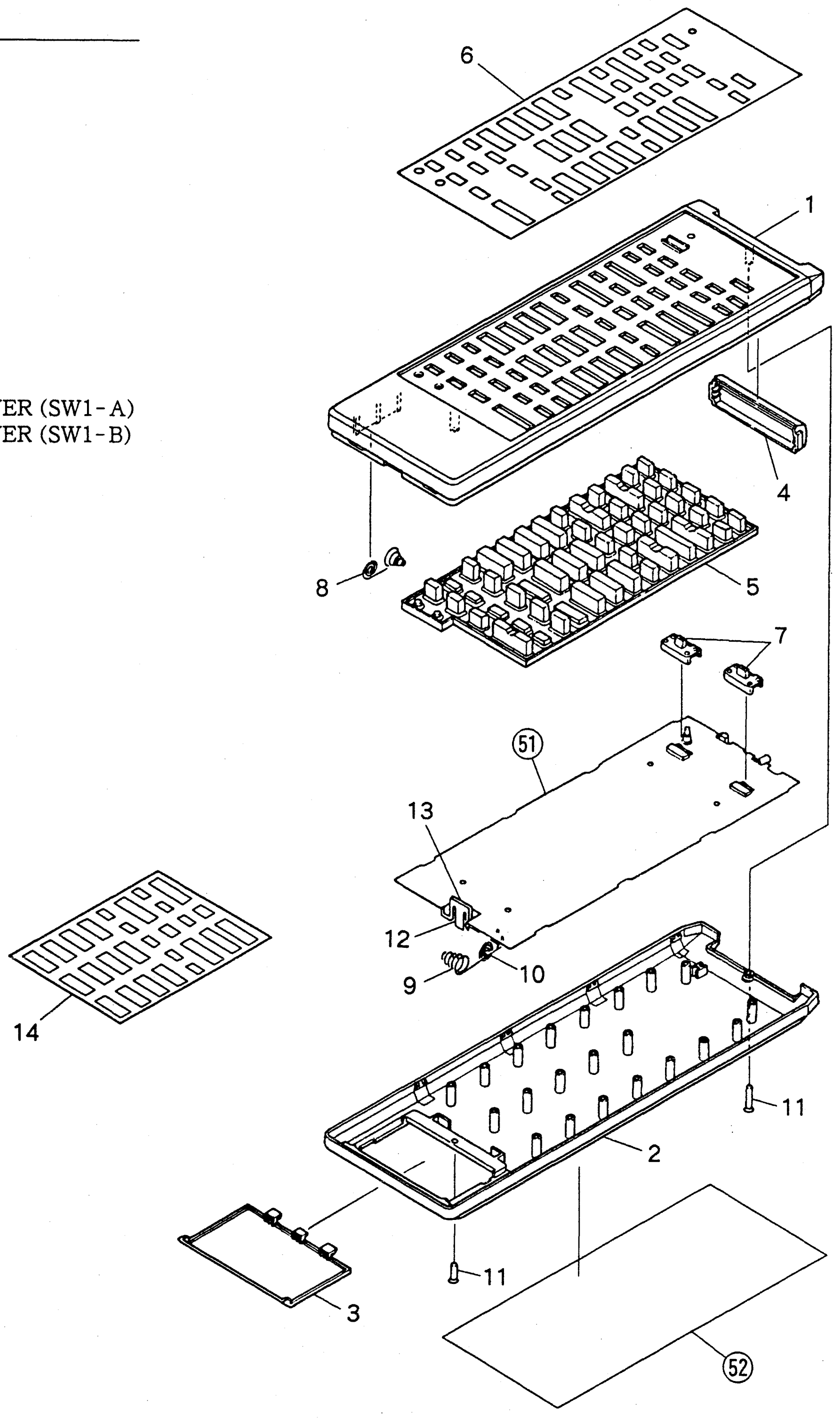
Fig. 10-4-3 Anode cable joining procedure (3)

11. REMOTE CONTROL UNIT (AXD1159)

11.1 EXPLODED VIEWS AND PARTS LIST

NOTES :
- Parts without part number cannot be supplied.
- The ⚠ mark found on some component parts indicates the importance of the safety factor of the part. Therefore, when replacing, be sure to use parts of identical designation.
- Parts marked by "◉" are not always kept in stock. Their delivery time may be longer than usual or they may be unavailable.

Mark	No.	Part No.	Description
	1	AZA1157	Case (A)
	2	AZA1137	Case (B)
	3	AZA1138	Cover
	4	AZA1139	Filter
	5	AZA1259	Rubber sheet
	6	AZA1260	Name plate
	7	AZA1142	Knob (A)
	8	AZB1268	Spring
	9	AZB1269	Spring
	10	AZB1270	Spring
	11	AZA1146	Screw
	12	AZS1084	REMOTE POWER (SW1-A)
	13	AZS1083	REMOTE POWER (SW1-B)
	14	AZA1161	Sheet
	51		PCB board
	52		Label



11.2 ELECTRICAL PARTS LIST

NOTES :

- Parts without part number cannot be supplied.
- Parts marked by "◉" are not always kept in stock. Their delivery time may be longer than usual or they may be unavailable.
- The ⚠ mark found on some component parts indicates the importance of the safety factor of the part. Therefore, when replacing, be sure to use parts of identical designation.
- When ordering resistors, first convert resistance values into code form as shown in the following examples.

Ex.1 When there are 2 effective digits (any digit apart from 0), such as 560 ohm and 47k ohm (tolerance is shown by J = 5 %, and K = 10 %).
560 Ω → 56 × 10^1 → 561 ·· RD1/4PS $\boxed{5}\boxed{6}\boxed{1}$ J
47k Ω → 47 × 10^3 → 473 ·· RD1/4PS $\boxed{4}\boxed{7}\boxed{3}$ J
0.5 Ω → 0R5 ·· RN2H $\boxed{0}\boxed{R}\boxed{5}$ K
1 Ω → 010 ·· RS1P $\boxed{0}\boxed{1}\boxed{0}$ K

Ex.2 When there are 3 effective digits (such as in high precision metal film resistors).
5.62k Ω → 562 × 10^1 → 5621 ·· RN1/4SR $\boxed{5}\boxed{6}\boxed{2}\boxed{1}$ F

SEMICONDUCTORS

Mark	Symbol & Description	Part No.
	IC1	PDG060-A
	IC2	AZC1232
	IC3	AZC1231
	Q1	AZC1229
	Q2	AZC1230
	D2	AZC1224
	D4	AZC1225
	D5	AZC1226
	D6 – D12	AZC1228

SWITCHES

Mark	Symbol & Description	Part No.
	S01,S03,S04,S06 Slide switch (SR RECALL/USE/LEARN, VDP/VCR/AUX)	AZS1074
	SW1-A (REMOTE POWER)	AZS1084
	SW1-B (REMOTE POWER)	AZS1083

CAPACITORS

Mark	Symbol & Description		Part No.
	C1,C2	(100μF/6.3V)	AZC1253
	C3	(10μF/16V)	AZC1254
	C4,C5	(100pF)	AZC1222
	C6,C8 – C10	(0.01μF)	AZC1220
	C7	(1000pF)	AZC1221

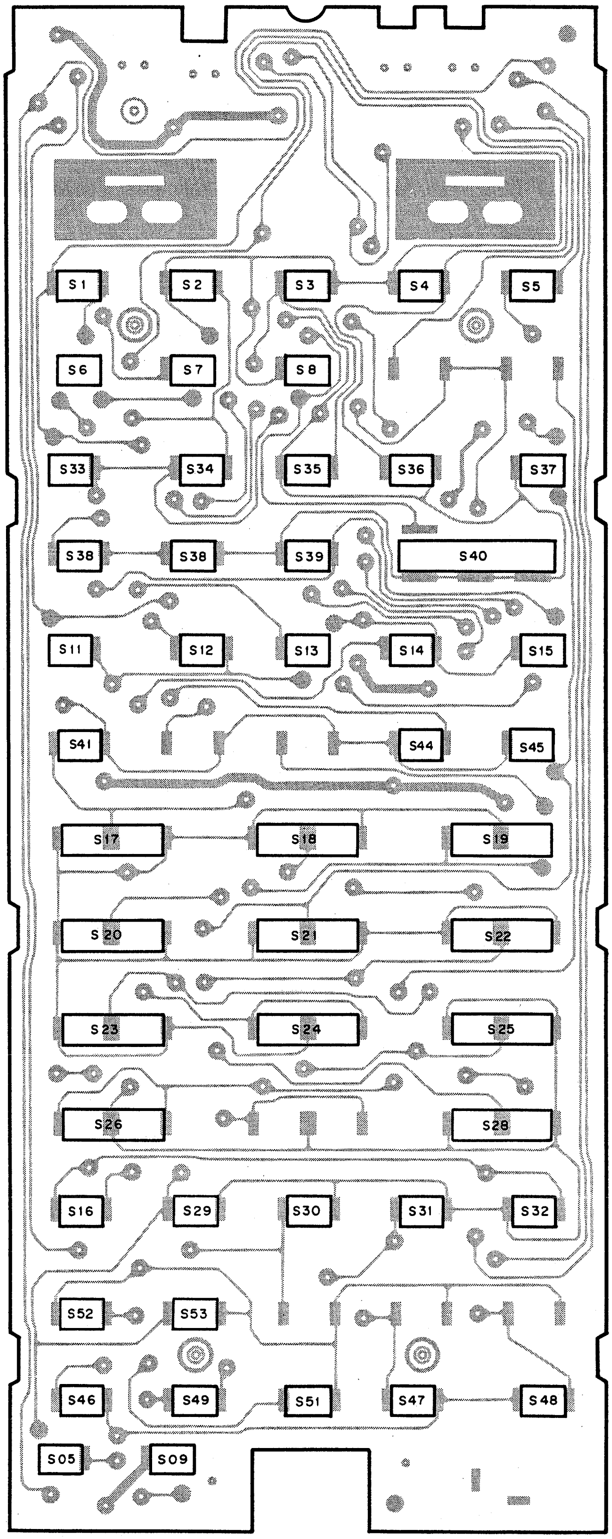
RESISTORS

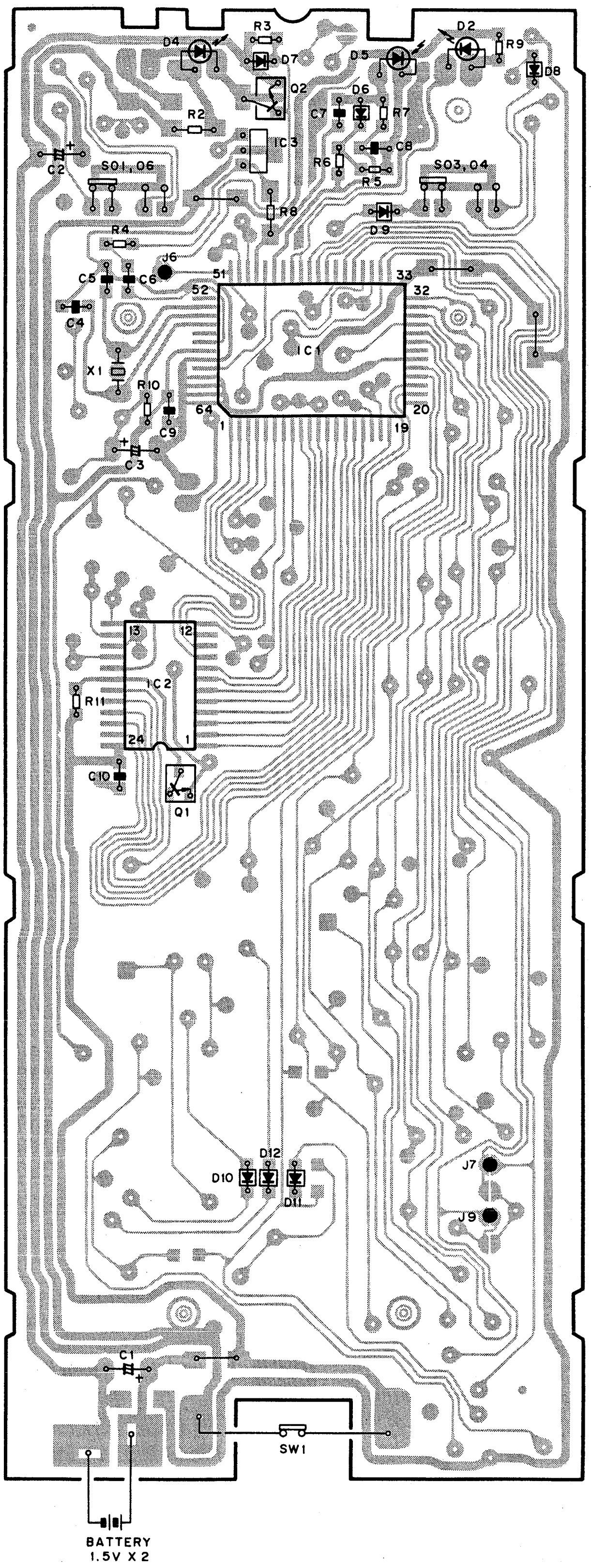
Mark	Symbol & Description		Part No.
	R2	(2.7Ω)	AZC1219
	R3	(100kΩ)	AZC1210
	R4	(680Ω)	AZC1217
	R5	(8.2kΩ)	AZC1214
	R6	(4.7kΩ)	AZC1215
	R7	(33kΩ)	AZC1211
	R8	(1.1MΩ)	AZC1218
	R9	(1kΩ)	AZC1216
	R10	(10kΩ)	AZC1213
	R11	(22kΩ)	AZC1212

OTHERS

Mark	Symbol & Description		Part No.
	X1	(2.0MHz)	AZC1223

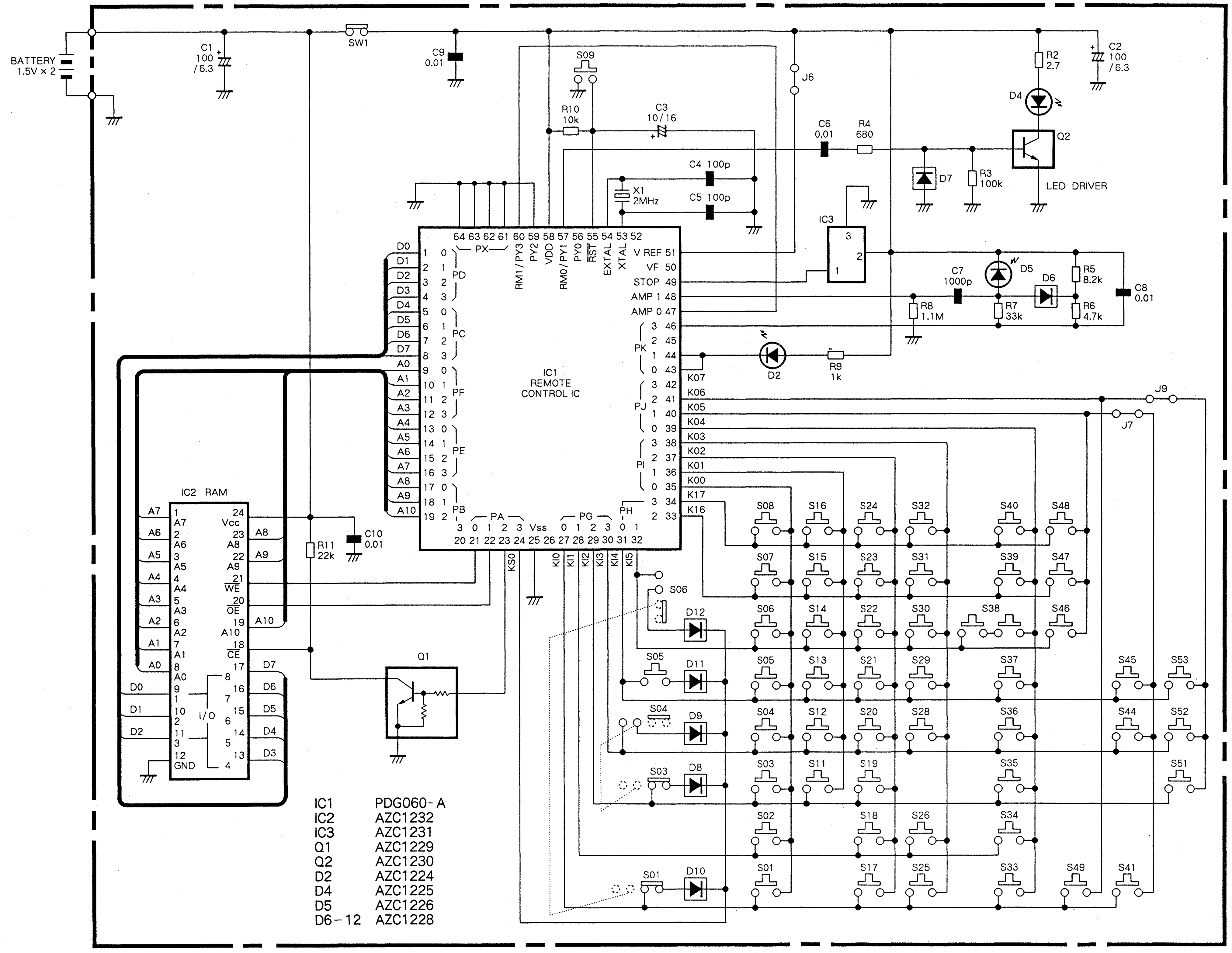
11.3 P. C. BOARDS PATTERN


S1
S2
S3
S4
S5
S6
S7
S8
S33
S34
S35
S36
S37
S38
S38
S39
S40
S11
S12
S13
S14
S15
S41
S44
S45
S17
S18
S19
S20
S21
S22
S23
S24
S25
S26
S28
S16
S29
S30
S31
S32
S52
S53
S46
S49
S51
S47
S48
S05
S09


D4
R3
D7
D5
D2
R9
D8
Q2
D6
C7
R7
R2
IC3
C8
C2
S01, 06
R6
R5
S03, 04
R8
D9
R4
J6
51
33
C5
C6
52
32
C4
IC1
X1
R10
64
1
19
20
C9
C3
13
12
IC2
R11
24
1
C10
Q1
D12
D10
D11
J7
J9
C1
SW1
BATTERY
1.5V X 2

11.4 SCHEMATIC DIAGRAM

REMOTE CONTROL UNIT (AXD1159)


BATTERY
1.5V × 2
C1
100
/6.3
SW1
C9
0.01
S09
J6
R10
10k
C3
10/16
C6
0.01
R4
680
R2
2.7
D4
Q2
C2
100
/6.3
D7
R3
100k
LED DRIVER
C4 100p
C5 100p
X1
2MHz
IC3
C7
1000p
D5
D6
R5
8.2k
C8
0.01
R8
1.1M
R7
33k
R6
4.7k
D2
R9
1k
J9
J7
IC1
REMOTE
CONTROL IC
PX
PD
PC
PF
PE
PB
PA
PG
PH
PK
PJ
PI
RM1/PY3
PY2
VDD
RM0/PY1
PY0
RST
EXTAL
XTAL
V REF 51
VF 50
STOP 49
AMP 1 48
AMP 0 47
Vss
K07
K06
K05
K04
K03
K02
K01
K00
K17
K16
KS0
KI0
KI1
KI2
KI3
KI4
KI5
D0
D1
D2
D3
D4
D5
D6
D7
A0
A1
A2
A3
A4
A5
A6
A7
A8
A9
A10
IC2 RAM
Vcc
WE
OE
CE
I/O
GND
R11
22k
C10
0.01
Q1
S06
S05
S04
S03
S01
D12
D11
D9
D8
D10
S08
S16
S24
S32
S40
S48
S07
S15
S23
S31
S39
S47
S06
S14
S22
S30
S38
S46
S05
S13
S21
S29
S37
S45
S53
S04
S12
S20
S28
S36
S44
S52
S03
S11
S19
S35
S51
S02
S18
S26
S34
S01
S17
S25
S33
S49
S41

IC1	PDG060-A
IC2	AZC1232
IC3	AZC1231
Q1	AZC1229
Q2	AZC1230
D2	AZC1224
D4	AZC1225
D5	AZC1226
D6−12	AZC1228

1. RESISTORS :
   Indicated in Ω, 1/4W, 1/6W and 1/8W, ±5% tolerance unless otherwise noted k ; kΩ, M ; MΩ, (F) ; ±1%, (G) ; ±2%, (K) ; ±10%, (M) ; ±20% tolerance.

2. CAPACITORS :
   Indicated in capacity (μF)/voltage (V) unless otherwise noted p ; pF. Indication without voltage is 50V except electrolytic capacitor.

3. OTHERS :
   ➡ ; Signal route.
   ⊘ ; Adjusting point.
   The ⚠ mark found on some component parts indicates the importance of the safety factor of the part. Therefore, when replacing, be sure to use parts of identical designation.
   ※ marked capacitors and resistors have parts numbers.

   This is the basic schematic diagram, but the actual circuit may vary due to improvements in design.

4. SWITCHES : (The underlined indicates the switch position)
   SW1 : REMOTE POWER

	VDP	VCR1	VCR2
S01	ON	OFF	OFF
S06	OFF	OFF	ON

	SR RECALL	USE	LEARN
S03	ON	OFF	OFF
S04	OFF	OFF	ON

S05 : M−CLR
S09 : RESET

S1 : TV
S2 : VDP POWER
S3 : VCR1
S4 : VCR2
S5 : SLEEP
S6 : TV
S7 : VDP INPUT SELECT
S8 : VIDEO 1
S11 : − TV CHANNEL
S12 : +
S13 : MUTE
S14 : − VOLUME
S15 : +
S16 : P IN P
S17 : 1
S18 : 2
S19 : 3
S20 : 4
S21 : 5
S22 : 6
S23 : 7
S24 : 8
S25 : 9
S26 : 0

S28 : CH RETURN
S29 : SWAP
S30 : MULTI
S31 : SHIFT
S32 : P IN P INPUT
S33 : CHAP −/CH −
S34 : CHAP +/CH +
S35 : PAUSE
S36 : REW
S37 : FF
S38 : ····/REC
S39 : STOP
S40 : PLAY
S41 : MTS
S44 : D-SOUND EXP.
S45 : DISPLAY
S46 : STD/AV MEMORY
S47 : −
S48 : +
S49 : PICTURE
S51 : SOUND
S52 : DPO
S53 : VNR

NOTE :

—▭— : Indicates a chip resistor.
▮ : Indicates a chip capacitor.
⊠ : Indicates a chip transistor.
▶| : Indicates a chip diode.

12. IC INFORMATION

■ PDB010-A

TV・system control microcomputer

● Pin Function

Note) I : CMOS input O : CMOS output N : N ch open dolein output

<table>
<tr><th>No.</th><th>Pin name</th><th>I/O</th><th>Function</th><th>Active</th></tr>
<tr><td>1</td><td>VSS1</td><td>I</td><td>GND (except for OSD).</td><td></td></tr>
<tr><td>2</td><td>OSC1</td><td>I</td><td rowspan="2">Oscillation terminal for generating the system clock.
Connect the ceramic resonator of 4.19MHz.</td><td rowspan="2"></td></tr>
<tr><td>3</td><td>OSC2</td><td>O</td></tr>
<tr><td>4</td><td>OPTION</td><td>I</td><td>This terminal is used to switch the functions to be controlled. Functions are switched depending on voltage value. OPTION voltage input.
<table>
<tr><th>Input voltage (V)</th><th>CSS</th><th>VNR</th><th>PINP. DSE</th><th>Picture and sound quality control</th><th>External input</th><th>Remark</th></tr>
<tr><td>0.00 – 0.47</td><td>—</td><td>○</td><td>—</td><td>Unite</td><td>2</td><td>AFT stop</td></tr>
<tr><td>0.47 – 1.09</td><td>—</td><td>○</td><td>—</td><td>Unite</td><td>2</td><td></td></tr>
<tr><td>1.09 – 1.72</td><td>—</td><td>○</td><td>○</td><td>Unite</td><td>2</td><td></td></tr>
<tr><td>1.72 – 2.34</td><td>—</td><td>○</td><td>○</td><td>Independence</td><td>2</td><td></td></tr>
<tr><td>2.34 – 2.97</td><td>—</td><td>○</td><td>○</td><td>Independence</td><td>4</td><td></td></tr>
<tr><td>2.97 – 3.59</td><td>○</td><td>—</td><td>—</td><td>Independence</td><td>2</td><td></td></tr>
<tr><td>3.59 – 4.22</td><td>○</td><td>—</td><td>○</td><td>Independence</td><td>2</td><td></td></tr>
<tr><td>4.22 – 5.00</td><td></td><td></td><td></td><td></td><td></td><td>Confirm the letter</td></tr>
</table>
Note : CSS : Custom Source Selector
VNR : Video Noise Reduction
PINP : Picture IN Picture
DSE : Dynamic Sound Expansion</td><td></td></tr>
<tr><td>5</td><td>AFT</td><td>I</td><td>AFT voltage input. AFT down is requested when the input is less than 1.41 V and AFT up is requested with an input of more than 3.6 V.</td><td></td></tr>
<tr><td>6</td><td>DPO</td><td>I</td><td>Analog voltage input for DPO control.</td><td></td></tr>
<tr><td>7</td><td>TVVMUTE</td><td>O</td><td>VIDEO MUTE output for TV. When detuning, switching an antenna or turning power ON /OFF, TV V MUTE is output. When tuning, it is released when AFT is in 62.5kHz step.</td><td>H</td></tr>
<tr><td>8</td><td>TVAMUTE</td><td>O</td><td>AUDIO MUTE output for TV. When detuning, switching an antenna or turning power ON /OFF, TV A MUTE is output. When tuning, it is released if AFT is completely tuned.</td><td>H</td></tr>
<tr><td>9</td><td>MTS0 (SAP)</td><td>O</td><td rowspan="2">MTS mode output.
<table>
<tr><th></th><th>MAIN/SAP</th><th>MAIN</th><th>SAP</th><th>MONO</th></tr>
<tr><td>MTS0</td><td>L</td><td>H</td><td>L</td><td>H</td></tr>
<tr><td>MTS1</td><td>L</td><td>L</td><td>H</td><td>H</td></tr>
</table></td><td>L</td></tr>
<tr><td>10</td><td>MTS1 (MAIN)</td><td>O</td><td>L</td></tr>
<tr><td>11</td><td>STEREO</td><td>I</td><td rowspan="2">Broadcast format deciding input.
<table>
<tr><th></th><th>STEREO/SAP</th><th>SAP</th><th>STEREO</th><th>MONO</th></tr>
<tr><td>STEREO</td><td>L</td><td>H</td><td>L</td><td>H</td></tr>
<tr><td>SAP</td><td>L</td><td>L</td><td>H</td><td>H</td></tr>
</table></td><td>L</td></tr>
<tr><td>12</td><td>SAP</td><td>I</td><td>L</td></tr>
<tr><td>13</td><td>LOCK</td><td>I</td><td>PLL lock detection input. Decide the PLL IC (TD6359P) is locked with the data sent from the microcomputer.</td><td>L</td></tr>
<tr><td>14</td><td>AKI1</td><td>I</td><td>Connect to the EEPROM (M6M80021P). (Not working)</td><td>L</td></tr>
<tr><td>15</td><td>AKI2</td><td>I</td><td>Not used. (Connect to Vss)</td><td>L</td></tr>
<tr><td>16</td><td>AKI3</td><td>O</td><td>Not used. (SYNC output of 128kHz)</td><td></td></tr>
</table>

<table>
<tr><th>No.</th><th>Pin name</th><th>I/O</th><th>Function</th><th>Active</th></tr>
<tr><td>17</td><td>ANT</td><td>N</td><td>Antenna switching signal output.
<table>
<tr><td>ANTENNA – 1</td><td>L</td></tr>
<tr><td>ANTENNA – 2</td><td>H</td></tr>
</table></td><td></td></tr>
<tr><td>18</td><td>AKI4</td><td>N</td><td>Not used. (Connect to Vss)</td><td></td></tr>
<tr><td>19</td><td>LIN. WHITE</td><td>N</td><td>Control output of linear white circuit.
<table>
<tr><td>LINEAR WHITE ON</td><td>L</td></tr>
<tr><td>LINEAR WHITE OFF</td><td>H</td></tr>
</table></td><td>L</td></tr>
<tr><td>20</td><td>AKI5</td><td>N</td><td>When PDB010-A goes out of control for some reason, this port is set to "H." (Used for RESET. "L" in normal condition)</td><td>H</td></tr>
<tr><td>21</td><td>COLOR</td><td>N</td><td>PWM output for color level control.</td><td>H</td></tr>
<tr><td>22</td><td>TINT</td><td>N</td><td>PWM output for tint level control.</td><td>H</td></tr>
<tr><td>23</td><td>CONTRAST</td><td>N</td><td>PWM output for contrast level control.</td><td>H</td></tr>
<tr><td>24</td><td>BRIGHT</td><td>N</td><td>PWM output for brightness level control.</td><td>H</td></tr>
<tr><td>25</td><td>SHARPNESS</td><td>N</td><td>PWM output for sharpness level control.</td><td>H</td></tr>
<tr><td>26</td><td>DETAIL</td><td>N</td><td>PWM output for detail level control.</td><td>H</td></tr>
<tr><td>27</td><td>VOLUME</td><td>N</td><td>PWM output for volume level control.</td><td>H</td></tr>
<tr><td>28</td><td>CONV/TONE</td><td>N</td><td>PWM output for convergence and sound quality level control.</td><td>H</td></tr>
<tr><td>29</td><td>WIDE</td><td>O</td><td rowspan="4">DSE (Dynamic Soud Expansion) mode control output.
<table>
<tr><th></th><th>DSE OFF</th><th>THEATER</th><th>MUSIC</th><th>S. STEREO</th></tr>
<tr><td>WIDE</td><td>L</td><td>H</td><td>H</td><td>L</td></tr>
<tr><td>S. STEREO</td><td>L</td><td>H</td><td>H</td><td>H</td></tr>
<tr><td>MODE</td><td>L</td><td>L</td><td>H</td><td>H</td></tr>
</table></td><td></td></tr>
<tr><td>30</td><td>S. STEREO</td><td>O</td><td></td></tr>
<tr><td>31</td><td>AKI6</td><td>O</td><td></td></tr>
<tr><td>32</td><td>MODE</td><td>O</td><td></td></tr>
<tr><td>33</td><td>INP2</td><td>O</td><td rowspan="3">Input switching signal output.
● External input 2 system type.
<table>
<tr><th></th><th>TV</th><th>VDP</th><th>VIDEO</th></tr>
<tr><td>INP0</td><td>H</td><td>L</td><td>L</td></tr>
<tr><td>INP1</td><td>H</td><td>L</td><td>H</td></tr>
<tr><td>INP2</td><td>L</td><td>L</td><td>L</td></tr>
</table>
● External input 4 system type.
<table>
<tr><th></th><th>TV</th><th>VDP</th><th>VIDEO-1</th><th>VIDEO-2</th><th>VIDEO-3</th></tr>
<tr><td>INP0</td><td>H</td><td>H</td><td>L</td><td>L</td><td>H</td></tr>
<tr><td>INP1</td><td>H</td><td>L</td><td>H</td><td>L</td><td>H</td></tr>
<tr><td>INP2</td><td>L</td><td>L</td><td>L</td><td>L</td><td>H</td></tr>
</table></td><td></td></tr>
<tr><td>34</td><td>INP1</td><td>O</td><td></td></tr>
<tr><td>35</td><td>INP0</td><td>O</td><td></td></tr>
<tr><td>36</td><td>RELAY</td><td>O</td><td>Power relay control signal output.
<table>
<tr><td>POWER ON</td><td>L</td></tr>
<tr><td>POWER OFF</td><td>H</td></tr>
</table></td><td>L</td></tr>
<tr><td>37</td><td>AC CLOCK</td><td>I</td><td>AC clock detection input. Used for time control for the sleep timer and auto power off and for detection of AC power OFF. Dummey reset (software reset) is generated when no AC clock is supplied for 100 msec.</td><td></td></tr>
<tr><td>38</td><td>HSYNC SD</td><td>I</td><td>Horizontal sync count input for the tuner AFT, H-SYNC is counted with the cycle of 0.99 msec, and when the counted amount is from 6 to 8, the system decides that a station existes.</td><td></td></tr>
</table>

No.	Pin name	I/O	Function	Active
39	BLKOUT	O	OSD blanking output.	H
40	B	O	OSD character data output.	H
41	G	O		H
42	R	O		H
43	TESTCROSS	O	The switch (TC4066BP) is controlled to switch the G output to Y when a test cross is generated.	H
44	VMUTE/ BLKIN	I/O	VIDEO MUTE output and blanking (no signal) detection input. Functions as an input port under normal conditions to detect a no-signal condition for automatic power off. MUTE is output when generating the test cross, when switching inputs and when turning the power on or off.	
45	4051C	N	Analog multiplexer switching output of D/A converter control.	
46	4051B	N		
47	4051A	N		

	4051C	4051B	4051A
BASS	L	L	L
TREBLE	L	L	H
BALANCE	L	H	L
CONVERGENCE R-H	L	H	H
CONVERGENCE R-V	H	L	L
CONVERGENCE B-H	H	L	H
CONVERGENCE B-V	H	H	L

No.	Pin name	I/O	Function	Active
48	AMUTE	N	AUDIO MUTE output. When selecting MUTE mode, switching input and turning power ON/OFF, MUTE is output.	H
49	PINPSTB	N	PINP data strobe.	
50	PINPENB	N	PINP data enable.	
51	PLLENB	N	PLL data enable. Use for output the serial data to PLL (TD6359P).	H
52	RESET	I	System reset. Reset is done by applying L for more than 0.95 μsec (when OSC = 4.19 MHz).	L
53	KEYIN	I	Main unit key scan signal (serial) input.	
54	HSYNC	I	Synchronizing signal input for OSD.	
55	VSYNC	I		
56	REMIN	I	Remote control signal input. Decipher the SR format signal.	
57	AKI7		Not used (pull-down)	H
58	EAROM	O	Chip enable output for EEPROM (M6M80021P).	H
59	SDATA	I/O	Serial data input and output. Use for interface with EEPROM, PLL and PINP.	H
60	SCLK	O	Serial transmission clock.	H
61	VSS2		GND for OSD.	H
62	DOSC2	O	Clock oscillation terminal for OSD (On Screen Display). Connect the LC for 7MHz oscillation.	
63	DOSC1	I		
64	VDD	I	Apply +5V power supply.	

■ TMS4461-12NL

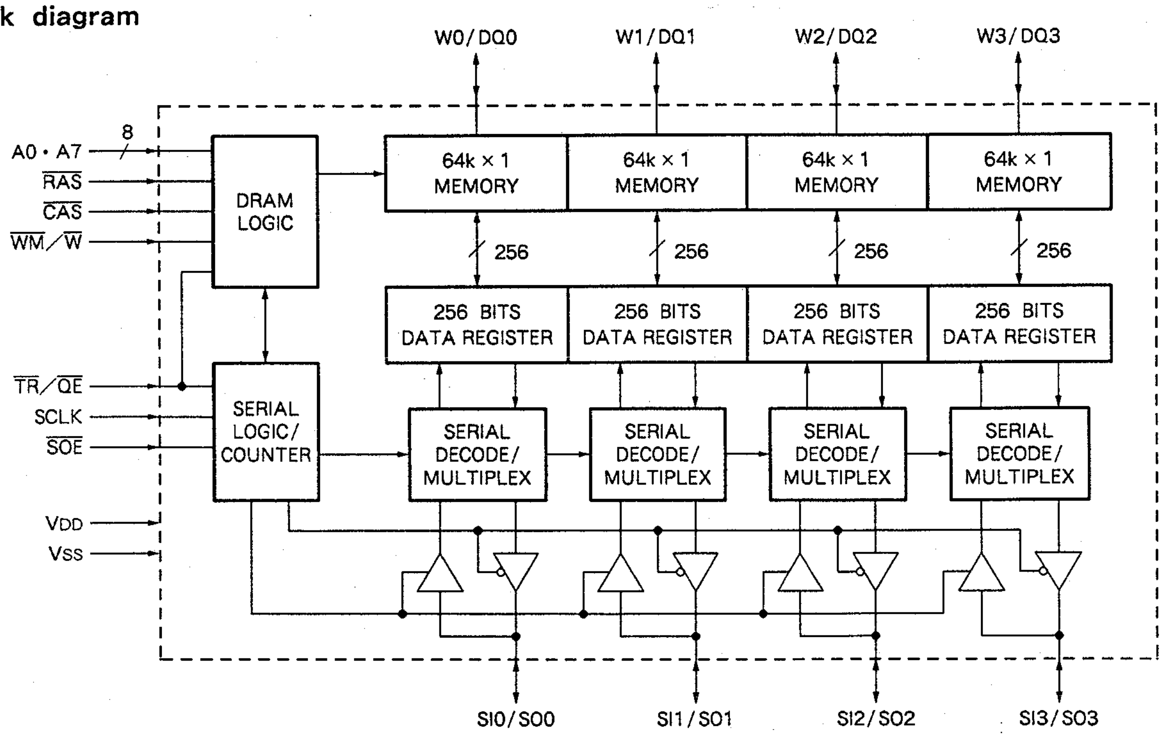
256k bit multiport video RAM

● Pin Function

No.	Pin name	Function	No.	Pin name	Function
1	SCLK	Serial clock input	13	A_7	Address input
2	SI0/SO0	Serial data input-output	14	A_3	
3	SI1/SO1		15	A_2	
4	$\overline{TR}/\overline{QE}$	Register transmission/Q output enable	16	A_1	
5	W0/DQ0	Random access data input-output/write mask bit.	17	A_0	
6	W1/DQ1		18	$\overline{CAS}$	Column address strobe
7	$\overline{WM}/\overline{W}$	Write mask select/write enable	19	W2/DQ2	Random access data input-output/write mask bit
8	$\overline{RAS}$	Low address strobe	20	W3/DQ3	
9	A_6	Address input	21	$\overline{SOE}$	Serial output enable
10	A_5		22	SI2/SO2	Serial data input-output
11	A_4		23	SI3/SO3	
12	V_{DD}	+5V power supply voltage	24	V_{SS}	Ground

Note: The 256k multi-port video RAM is a memory area with a dynamic RAM of 65,536 × 4 bits and four data registers. A sequential access port is connected to four 256-bit dynamic data registers, permitting 256 words × 256 bits of the four registers to be serially accessed.

● Block diagram


W0/DQ0
W1/DQ1
W2/DQ2
W3/DQ3
A0・A7
8
RAS
CAS
WM/W
DRAM LOGIC
64k × 1 MEMORY
256
256 BITS DATA REGISTER
TR/QE
SCLK
SOE
SERIAL LOGIC/ COUNTER
SERIAL DECODE/ MULTIPLEX
VDD
VSS
SI0/SO0
SI1/SO1
SI2/SO2
SI3/SO3

■ PD5136

Key input microcomputer

● Pin Function

No.	Pin name	I/O	Function	No.	Pin name	I/O	Function
1	V_{SS}	—	GND	11	F_7	O	8 bits output (N ch open dolein output. Key scan output)
2	TEST	I	Connect to Vss at usually.	12	F_6		
3	$\overline{AC}$	I	Reset at "L".	13	F_5		
4	OSC IN	I	Oscillation by the ceramic resonator.	14	F_4		
5	OSC OUT	O		15	F_3		
6	D		1 bit input/output (N ch open dolein output)	16	F_2		
				17	F_1		
7	E_0	I	4 bits input (key input with pull up resistor)	18	F_0		
8	E_1			19	C	O	Output for transmission. (CMOS output) When $\overline{AC}$ terminal is set to "L", C becomes "L". Becomes "L" at the standby
9	E_2						
10	E_3			20	V_{DD}	—	Power supply terminal

Note: This IC includes a counter circuit which counts the reference signal pulses supplied from the oscillation circuit and operates as follows.

- The oscillation circuit does not oscillate in standby condition. With a key input operation (when input port E detects "L"), the circuit starts oscillating. The counter circuit starts counting the reference signal pulses when oscillation is started. When the counter circuit has counted 12288 pulses (when about 26 msec. have passed), the counter circuits sends an operation start command to the program counter, which consequently starts operating from address 0.
- If output port C does not change from "L" to "H" while the counter circuit counts up to 49152 pulses of the reference signal (for about 104 msec.), the standby condition is forcibly resumed.
  If output port C changes from "L" to "H" before the counter circuit counts up to 49152 pulses of the reference signal, the count value of the counter circuit becomes 0 and the circuit starts counting the pulses of the reference signal from 0 again.

■ PA0042

Dynamic sound expansion

● Pin Function

No.	Pin name	Function	No.	Pin name	Function
1	VCC	Power supply terminal (Apply +12V)	16	F5	Bandpass filter terminal 5
2	LIN	L ch input	17	C6	Capacitor terminal 6 for rectifier
3	RIN	R ch input	18	F6	Bandpass filter terminal 6
4	OUT	Output terminal for control	19	C7	Capacitor terminal 7 for rectifier
5	IN	Input terminal for control	20	F7	Bandpass filter terminal 7
6	SB	Terminal for low-pass emphasis	21	C8	Capacitor terminal 8 for rectifier
7	C1	Capacitor terminal 1 for rectifier	22	F8	Bandpass filter terminal 8
8	F1	Bandpass filter terminal 1	23	S3	Mode switching terminal 3
9	C2	Capacitor terminal 2 for rectifier	24	S2	Mode switching terminal 2
10	F2	Bandpass filter terminal 2	25	S1	Mode switching terminal 1
11	C3	Capacitor terminal 3 for rectifier	26	REF	Reference voltage input
12	F3	Bandpass filter terminal 3	27	VREF	Internal reference voltage terminal
13	C4	Capacitor terminal 4 for rectifier	28	ROUT	R ch output
14	F4	Bandpass filter terminal 4	29	LOUT	L ch output
15	C5	Capacitor terminal 5 for rectifier	30	GND	Ground

Logic table of mode switching

Mode	S1	S2	S3
DIR	L	L	—
NR	H	L	—
SS	L	H	—
SW	H	Vcc	—
SC	H	H	—
SB	—	—	H

L = 0V, H = 5V,
Vcc = Voltage value applied to the VCC terminal
SB mode can be turned on or off regardless of S1 and S2.

Note: DIR (DIRECT) : The input signal is output as-is.
NR : Noise reduction
SS : Sinulated stereo
SW : Stereo wide
SC : Karaoke
SB : Super bass

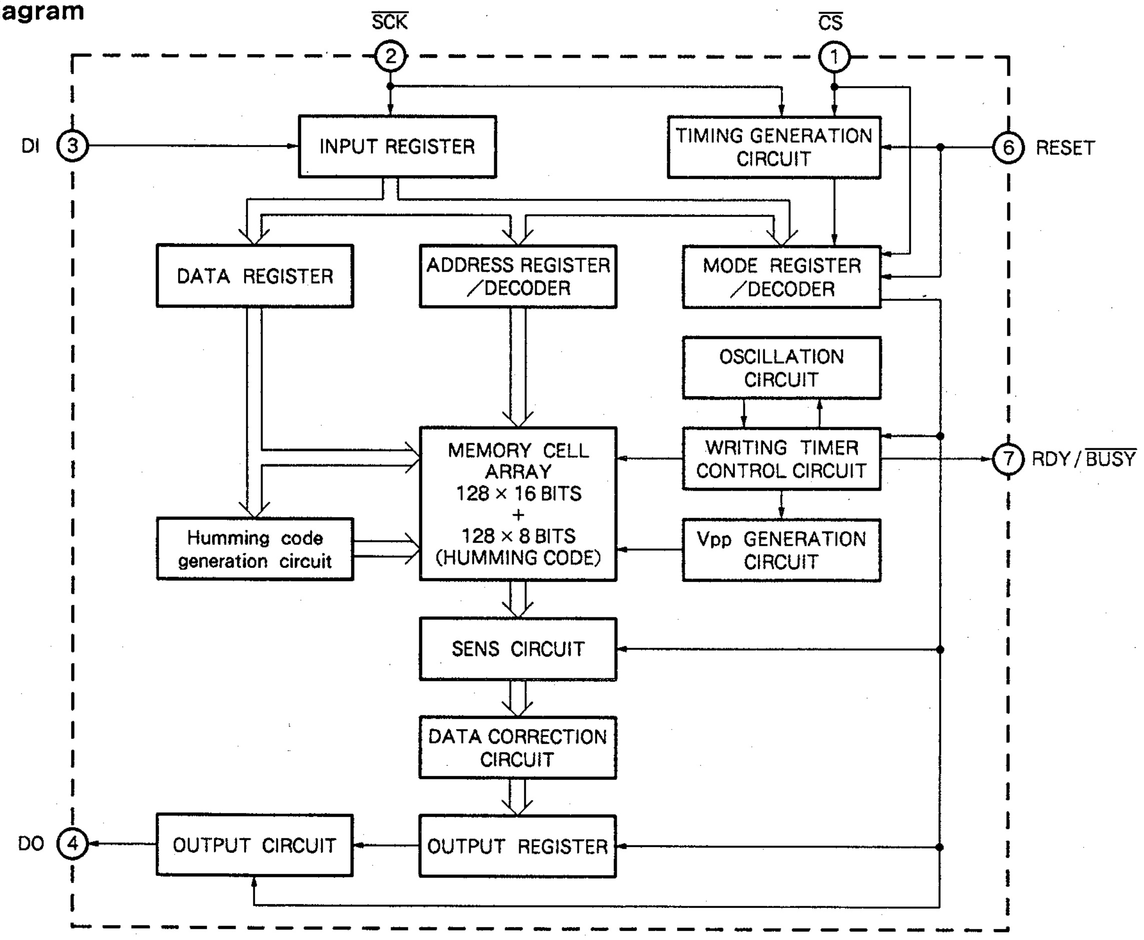
■ M6M80021P

128 × 16 bit EEPROM

● Pin Function

No.	Pin name	Function
1	$\overline{CS}$	● Performs chip selection at "L." When this pin becomes "H," the built-in sequential controller is reset. Therefore, once set this pin to "H" before executing any mode. ● While executing a write operation (when the busy output is "L"), the write operation continues regardless of the input to this pin. ● Mode reading is enabled when this pin is set to "H" after a write operation is completed. Only "status output" can be read even if this pin remains "L" after the start of a write operation as the sequential controller is reset after the write operation is started.
2	$\overline{SCK}$	● Reads input data at the rising edge of the clock. ● Outputs data in synchronization with the falling edge of the clock.
3	DI	● Data are input through this pin.
4	DO	● Data are output through this pin. DO can be connected to DI.
5	V_{SS}	● To be connected to GND (ground).
6	RESET	● To be set to "H" when turning the power ON/OFF. ● When this pin is set to "H", the sequential controller and write circuit are reset and memory protect is excecuted. If this pin is set to "H" during a write operation, the write operation is interrupted. ● This pin can be connected to CS. To connect, CS (= RESET) must be kept at "L" during a write operation.
7	RDY/$\overline{BUSY}$	● Becomes "L" while a write operation is executed. ● Becomes "L" when the power is turned ON/OFF. Any read operation is inhibited.
8	V_{DD}	Pin for applying +5V.

● Block diagram


$\overline{SCK}$
②
$\overline{CS}$
①
DI ③
INPUT REGISTER
TIMING GENERATION CIRCUIT
⑥ RESET
DATA REGISTER
ADDRESS REGISTER /DECODER
MODE REGISTER /DECODER
OSCILLATION CIRCUIT
MEMORY CELL ARRAY 128 × 16 BITS + 128 × 8 BITS (HUMMING CODE)
WRITING TIMER CONTROL CIRCUIT
⑦ RDY/$\overline{BUSY}$
Humming code generation circuit
Vpp GENERATION CIRCUIT
SENS CIRCUIT
DATA CORRECTION CIRCUIT
DO ④
OUTPUT CIRCUIT
OUTPUT REGISTER

■ NJM2217L

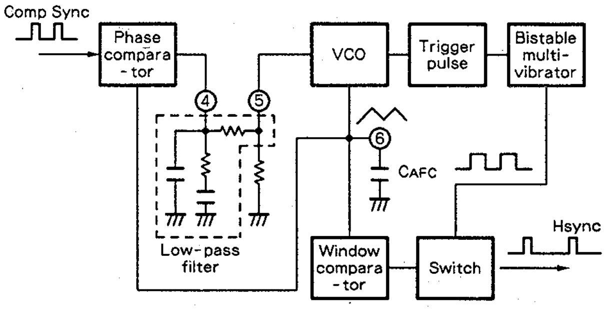
Video superimposer with AFC.

● Pin Function

No.	Pin name	Function
1	NC	No connection.
2	NC	No connection.
3	VIDEO-IN 2	Video signal input. Sync chip is clamped by 2.1V.
4	AFC-LPF	Connect the low-pass filter of AFC circuit.
5	f FREE-CONT	Adjust the free run frequency by connecting a variable resistor.
6	VCO-OUT	Connect a capacitor that sets the oscillation frequency for VCO.
7	V^+	Power supply voltage.
8	AFCOUT-CONT	Output H sync with AFC at High and output comp-sync from pin 9 at Low.
9	Hsync-OUT	Horizontal sync signal output. (Emitter follower output)
10	Sync Sepa-OUT	Sync. separation circuit output. When measuring the free run frequency, short circuit to GND.
11	Sync Sepa-IN	Sync. separation circuit input.
12	GND	Ground.
13	Vsync Sepa-IN	Vertical sync. playback circuit input.
14	Vsync OUT	Vertical sync. output. (Emitter follower output)
15	VIDEO-OUT	Video signal output. (Emitter follower output)
16	Charact-IN 1	Control terminal of Video SW-3.
17	Lum-CONT 2	Luminance level adjustment for letter signal which input to pin 16.
18	Charact-IN 1	Control terminal of video SW-2.
19	Lum-CONT 1	Luminance level adjustment for letter signal which input to pin 18.
20	SW-CONT	Control terminal of video SW-1. Output the video signal which is input to VIDEO-IN 1 at Low and output the video signal which is input to VIDEO-IN 2 at High.
21	VIDEO-IN 1	Video signal input. Sync. chip is clamped by 2.1V.
22	NC	No connection.

Notes :

- Video switches
  NJM2217L has three video switches. One of them switches two video inputs, and the other two are used for superimposing characters or background signals.
  These video switches function by applying a DC voltage to pins 16, 18 and 20. The threshold voltage is 0.75V.
  NM2217L also has a clamping circuit with which sync-chip clamping is activated at 2.1 V on the video signal supplied to VIDEO IN 1 and 2.
  The video output is an emitter-follower output and can drive a load of up to 5kΩ.
- Sync separation circuit
  Composite sync signal can be separated from video signals. The composite sync signal is applied to the AFC circuit where only horizontal sync is taken out.
  The sync separation is performed with more than 120mVp-p from the sync chip.
- Vertical sync reproduction circuit
  A Schmitt trigger circuit reproduces a vertical sync signal from triangular waves obtaind by making the composite sync signal of the sync separation circuit output pass through an integrating circuit.
  The output is driven by an emitter follower and an output of 4Vp-p can be obtaind with a 2kΩ load.
- AFC circuit
  A block diagram of the AFC circuit is shown in Fig. 3. Voltage corresponding to the phase difference between the horizontal sync signal supplied to the phase comparator and triangular wave from VCO is smoothed by a low-pass filter and applied to VCO changing the oscillation frequency of VCO in the same direction as that of the input frequency.
  By making the triangular wave of the VCO output pass through the window comparator to obtain an output signal having the same pulse width of 5 μsec as that of horizontal sync.



Block diagram of AFC circuit

■ TMC3499PJ

Picture in picture controller

● Pin Function

No.	Pin name	I/O	Function	Remark
1	Y OUT	O	Shrunk sub-picture luminance output.	Analog
2	DA GND		GND for DA converter	
3	MA GND		GND for main-picture VCO and phase detector.	
4	RCK	I	Read master clock input	CMOS
5	MVCO OUT	O	Main-picture VCO output	COMS
6	MC1		Main-picture VCO capacitor.	
7	VR2		Main-picture VCO register.	
8	MVCO IN	I	Main-picture VCO input.	Analog
9	MR1		Main-picture VCO register	
10	MPD OUT	O	Main-picture HD phase detector output.	3-State
11	MHD !	I	Main-picture HD ! input ("L" = H-Sync)	TTL. SMT (Notel)
12	MA VDD		VDD for main-picture VCO and phase detector.	
13	VDD		VDD for digital block.	
14	GND		GND for digital block.	
15	CID	I	Chroma identification signal input for PAL/SECAM.	TTL
16	R-Y S/H	O	Sample/Hold control signal for shrink sub-picture (R-Y) "H" = Sample, "L" = Hold	CMOS
17	B-Y S/H	O	Sample/Hold control signal for shrink sub-picture (B-Y) "H" = Sample, "L" = Hold	COMS
18	MAIN	O	Control signal for main-picture source selection.	COMS
19	SUBPIC	O	Control signal for sub-picture insertion. "H" = sub-picture, "L" = Main-picture	COMS
20	FRAME	O	Control signal for frame insertion. "H" = frame, "L" = Main or sub-picture	COMS
21	MVD	I	Main-picture VD input	TTL
22	CMD AR	I	Command area input	TTL. SMT
23	CMD DT	I	Command data input —— 8 bit serial	TTL. SMT
24	CMD CK	I	Command clock input	TTL. SMT
25	SNGLW	I	One field write command input "L" = Write one field	TTL. SMT
26	MULTMD	I	Control signal for mult-pip mode. "L" = Pop-up mode, "H" = Random mode	TTL. SMT
27	L525/625	I	Control signal for 525/625 line TV system "L" = 625 for PAL/SECAM, "H" = 525 for NTSC	TTL. SMT
28	CENCO	I	Control signal for chroma encoder.	TTL
29	VDD		VDD for digital block	
30	WDT2	O	Write data for VRAM random port (W2/DQ2)	CMOS
31	WDT3	O	Write data for VRAM random port (W3/DQ3)	CMOS
32	RDT2	I	Read data from VRAM serial port (SI2/SO2)	CMOS
33	RDT3	I	Read data from VRAM serial port (SI3/SO3)	CMOS
34	GND		GND for digital block	
35	SCK	O	Clock for VRAM serial port (SCLK)	CMOS
36	RDT0	I	Read data from VRAM serial port (SI0/SO0)	CMOS
37	RDT1	I	Read data from VRAM serial port (SI1/SO1)	CMOS
38	TR	O	TR for VRAM.	CMOS
39	WDT0	O	Write data for VRAM random port (W0/DQ0)	CMOS
40	WDT1	O	Write data for VRAM random port (W1/DQ1)	CMOS

No.	Pin name	I/O	Function	Remark
41	WE	O	WE for VRAM	CMOS
42	RAS	O	RAS for VRAM	CMOS
43	ADR6	O	Address for VRAM (A6)	CMOS
44	ADR5	O	Address for VRAM (A5)	CMOS
45	ADR4	O	Address for VRAM (A4)	CMOS
46	VDD		VDD for digital block	
47	ADR7	O	Address for VRAM (A7)	CMOS
48	ADR3	O	Address for VRAM (A3)	CMOS
49	ADR2	O	Address for VRAM (A2)	CMOS
50	ADR1	O	Address for VRAM (A1)	CMOS
51	ADR0	O	Address for VRAM (A0)	CMOS
52	CAS	O	CAS for VRAM	CMOS
53	GND		GND for digital block	
54	TEST4	I	Test pin (internal pull up)	TTL, SMT
55	TEST3	I	Test pin (internal pull up)	TTL, SMT
56	CENC1	I	Control signal for chroma encoder (internal pull up)	TTL, SMT
57	SUB	O	Control signal for sub-picture source selection	CMOS
58	SVD	I	Sub-bicture VD ! input ("L" = V-Sync)	TTL
59	Y S/H	O	Sample/Hold control signal for sub-picture (Y) "H" = Sample, "L" = Hold	CMOS
60	BST FLG	O	Burst flag for sub-picture "H" = Burst period	CMOS
61	VDD		VDD for digital block	
62	GND		GND for digital block	
63	SA GND		GND for sub-picture VCO and phase detector	
64	SHD	I	Sub-picture HD input ("L" = H-Sync)	TTL, SMT
65	SPD OUT	O	Sub-picture HD phase detector output	3-State
66	SR1		Sub-picture VCO register	
67	SVCO IN	I	Sub-picture VCO input	Analog
68	SR2		Sub-picture VCO register	
69	SC1		Sub-picture VCO capacitor	
70	SVCO OUT	O	Sub-picture VCO output	CMOS
71	WCK	I	Write master clock input	CMOS
72	SA VDD		VDD for sub-picture VCO and phase detector	
73	AD VDD		VDD for AD converter and multiplexer	
74	B-Y IN	I	Sub-picture (B-Y) input	Analog
75	AD GND		GND for multiplexer	
76	R-Y IN	I	Sub-picture (R-Y) input	Analog
77	AD GND		GND for multiplexer	
78	Y IN	I	Sub-picture (Y) input	Analog
79	AD GND		GND for multiplexer	
80	MPX OUT	O	Analog multiplexer output	Analog
81	AD VRT	I	AD converter top-reference voltage	Analog
82	AD VRB	I	AD converter bottom-reference voltage	Analog
83	AD IN	I	AD converter input	Analog
84	AD GND		GND for AD converter and multiplexer	
85	CA GND		GND for chroma VCO and phase detector	

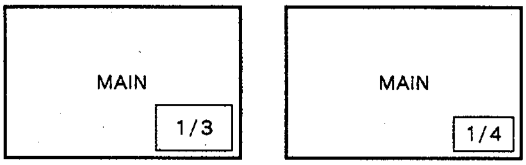
No.	Pin name	I/O	Function	Remark
86	CCK	I	Chroma encoder clock input	CMOS
87	CVCO OUT	O	Chroma VCO output	CMOS
88	CC1		Chroma VCO capacitor	
89	CR2		Chroma VCO register	
90	CVCO IN	I	Chroma VCO input	Analog
91	CR1		Chroma VCO register	
92	CPD OUT	O	Phase detector output for main-picture fac180	3-State
93	FSC	I	Main-picture fsc (NTSC = 3.58MHz, PAL = 4.43MHz) input	Self-Bias
94	CA VDD		VDD for chroma VCO and phase detector	
95	DA VDD		VDD for DA converter	
96	C OUT	O	Shrunk sub-picture chroma output	Analog
97	CDA VRT	I	Chroma DA top-reference voltage	Analog
98	CDA VRB	I	Chroma DA bottom-reference voltage	Analog
99	YDA VRB	I	Luminance DA bottom-reference voltage	Analog
100	YDA VRT	I	Luminance DA top-reference voltage	Analog

Note : SMT = Schmitt-Trigger

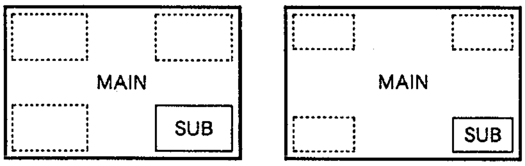
FUNCTION

Note: This model does not use the SIZE (1/4) function.

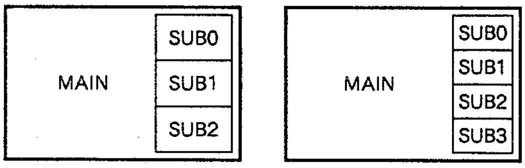
1. Selectable sub-picture size (1/3, 1/4)



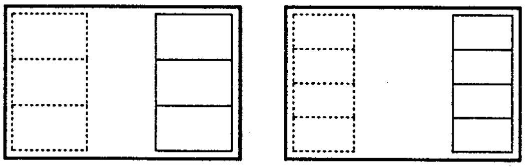
2. Selectable one of four sub-picture position



3. Mult PIP mode



3-1. Selectable left or right multi sub-picture position



3-2. Selectable scroll or random upating in the multi sub-picture

4. Selectable motion or freeze & strobo-scopic sub-picture

5. Interchangeable main-picture and sub-picture

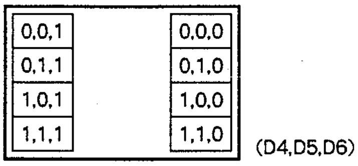
6. Optinal NTSC (525H) or PAL (625H) system

COMMAND

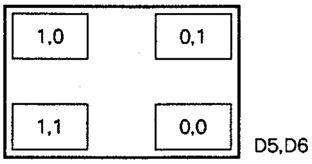
COMMAND DATA								FUNCTION
D1	D2	D3	D4	D5	D6	D7	D8	
PIP -ON	SIZE	MULT	SILL/ LOCO	LOC1	LOC2	MAIN	SUB	
0/1	—	—	—	—	—	—	—	PIP:OFF/ON
1	0/1	—	—	—	—	—	—	SIZE:1/3/1/4
1	—	0/1	—	—	—	—	—	SINGLE-PIP/ MULTI-PIP
1	—	0	0/1	—	—	—	—	MOTION/STILL (NOTE1)
1	—	1	NOTE2	NOTE2	NOTE2	—	—	WRITE POSITION
1	—	0	—	NOTE3	NOTE3	—	—	WRITE POSITION
1	—	—	—	—	—	0/1	—	MAIN:VEDE 0 /VIDE 1
1	—	—	—	—	—	—	0/1	SUB:VIDE 0 /VIDE 1

NOTE1 : ONLY SINGLE PIP MODE

NOTE2 : MULTI PIP WRITE POSITION



NOTE3 : SINGLE PIP WRITE POSITION



13. POWER DOWN TYPE PROTECTION DESCRIPTION

The projection monitor receiver is equipped with various types of protection circuits. When a protection circuit is activated, the relay (RY651), which is used as the power switch, is turned off, so that the power to the set is turned off. If the power is automatically turned off immediately after the power is turned on, a protection circuit may be active.
Once a protection circuit is activated, Q651 functions so that the set cannot be turned on by the power switch on the front panel or on the remote control unit. To check the symptom, be sure to disconnect the AC plug from the AC outlet and wait for about 15 to 20 seconds, then reconnect the plug to the outlet.

• Function of the protection circuits

1. X-ray protection circuit

When the anode voltage (normally, max. 32kV) is increased abnormally for some reasons, an X-ray may be emitted from the CRT. If the anode voltage is increased abnormally, the circuit detects it and turns off the relay (RY651).
The detection is effectuated by monitoring the output voltage of the coil mounted to pin 3 and pin 4 of F. B. T. (T553) that generates the anode voltage. If the anode voltage is increased, the output voltage of the coil also is increased. The differential amplifier of Q551 and Q552 detects the change in voltage. When the base voltage of Q654 reaches approx. 0.6 to 0.7 V, Q654 is turned on, and turns off Q651 which drives the power switch relay (RY651). The VR591 of the DEFLECTION assembly is adjusted at factory so that the X-ray protection circuit will be activated at the correct level. Repair should be effectuated by replacing the DEFLECTION assembly, and not by replacing the parts marked by × in the schematic diagram.

2. CRT heater voltage detection circuit

The CRT heater voltage is controlled by Q663 and D686, so that it is normally 6.3V. If the heater voltage is increased by some reasons, the life of the CRT will become shorter. If the heater is defective and the current to the heater is excessive, the heater voltage will be dropped. The CRT heater voltage detection circuit also detects this voltage drop to avoid the excessive current. When the heater voltage is increased, Q664 and D687 will detect it. When the voltage drop occurs due to the excessive current, the voltage at the both ends of R310 (10Ω) will be increased. Q662 monitors this voltage. The output from the CRT heater voltage detection circuit is lead via R313 (2.2kΩ) to the same line as the output from the X-ray protection circuit.

3. +135V power supply detection circuit

This circuit detects an excessive current to the 135V power line. If an excessive current is applied to the 135V power line, the voltage drops. When the voltage drops under about 120V, Q652 is turned on, and it turns on Q655 through R254 (3.9kΩ). When Q654 is turned on, Q656 is turned off, then the relay (RY651) is turned off. Q656 functions so that the relay (RY651) cannot be turned on again except when the AC plug is disconnected from the AC outlet and reconnected after about 15 to 20 seconds.

4. Anti-burning circuit of the CRT

If the vertical deflection circuit does not function by some reasons, the CRT will be burnt out with a horizontal line. To prevent this, the potential difference at resistor R334 is monitored by Q154. When no potential difference is detected at R334, Q154 is turned off, and the collector voltage is increased. This collector voltage will be output via D126 to the same line as the output form the X-ray protection circuit.

5. Relay (RY652) on detection circuit

Resistors (R269 and R275) have been inserted in the primary side of the switching regulator.
They control surge current when power is applied. After power is applied, resistors (R269 and R275) are short-circuited by turning on a relay (RY652).
If this relay (RY652) is not turned on for some reason, the resistors (R269 and R275) may generate extraordinary heat or operations of this unit may become unstable.
The RELAY ON DETECTION circuit aims at confirming that this relay (RY652) is surely turned on.
If the relay (RY652) has not been turned on, a potential difference is generated between the two ends of resistors (R269 and R275).
This potential difference is detected by IC651.
When a potential difference is detected, a positive voltage (about 12 V) is output to pin 3 of IC651.
This voltage is output through D658 to the same line as that of the +135V POWER SUPPLY DETECTION CIRCUIT output.
This turns off the power in the same manner as with other protection circuits.

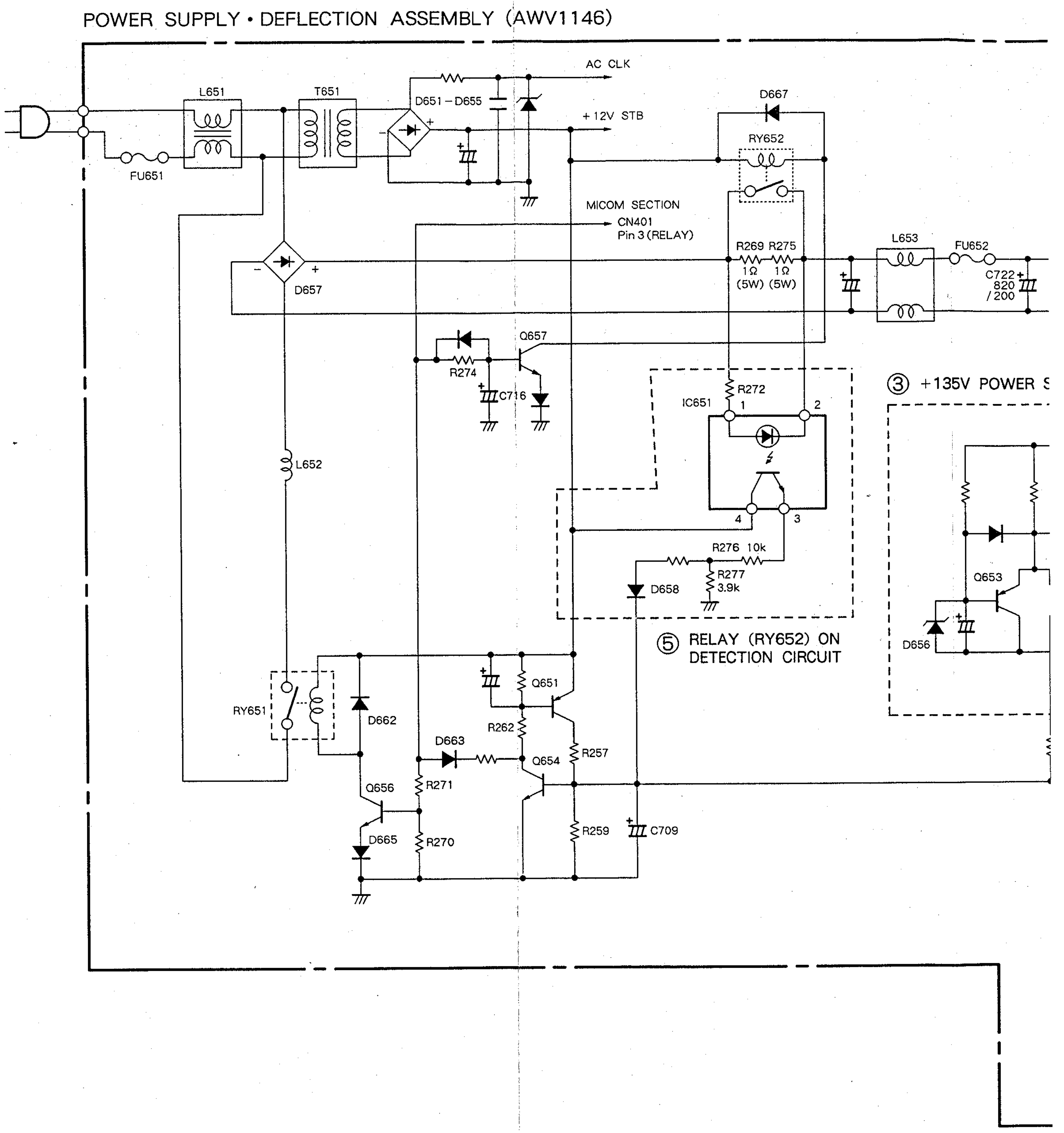


Fig. 13-1 BLOCK DIAGRAM OF PROTECTION CIRCUIT

ircuit

rent to the 135V is applied to the When the voltage turned on, and it 2). When Q654 is the relay (RY651) the relay (RY651) hen the AC plug and reconnected

s not function by urnt out with a otential difference Q154. When no R334, Q154 is is increased. This D126 to the same protection circuit.

it

n inserted in the ulator.

power is applied. 69 and R275) are elay (RY652). ed on for some 75) may generate f this unit may

aims at confirming turned on. ed on, a potential o ends of resistors

by IC651. tected, a positive in 3 of IC651. to the same line PLY DETECTION

e manner as with

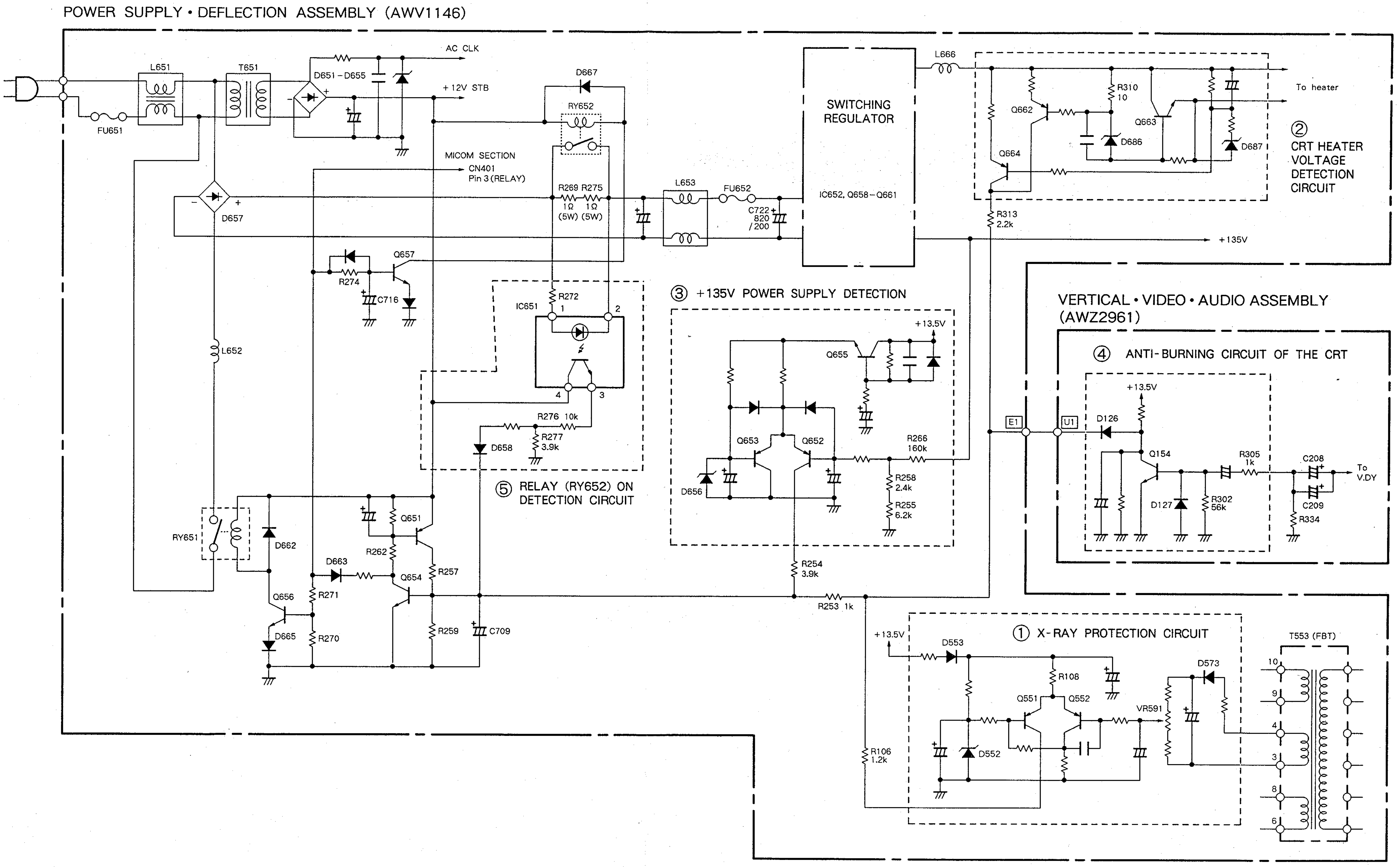
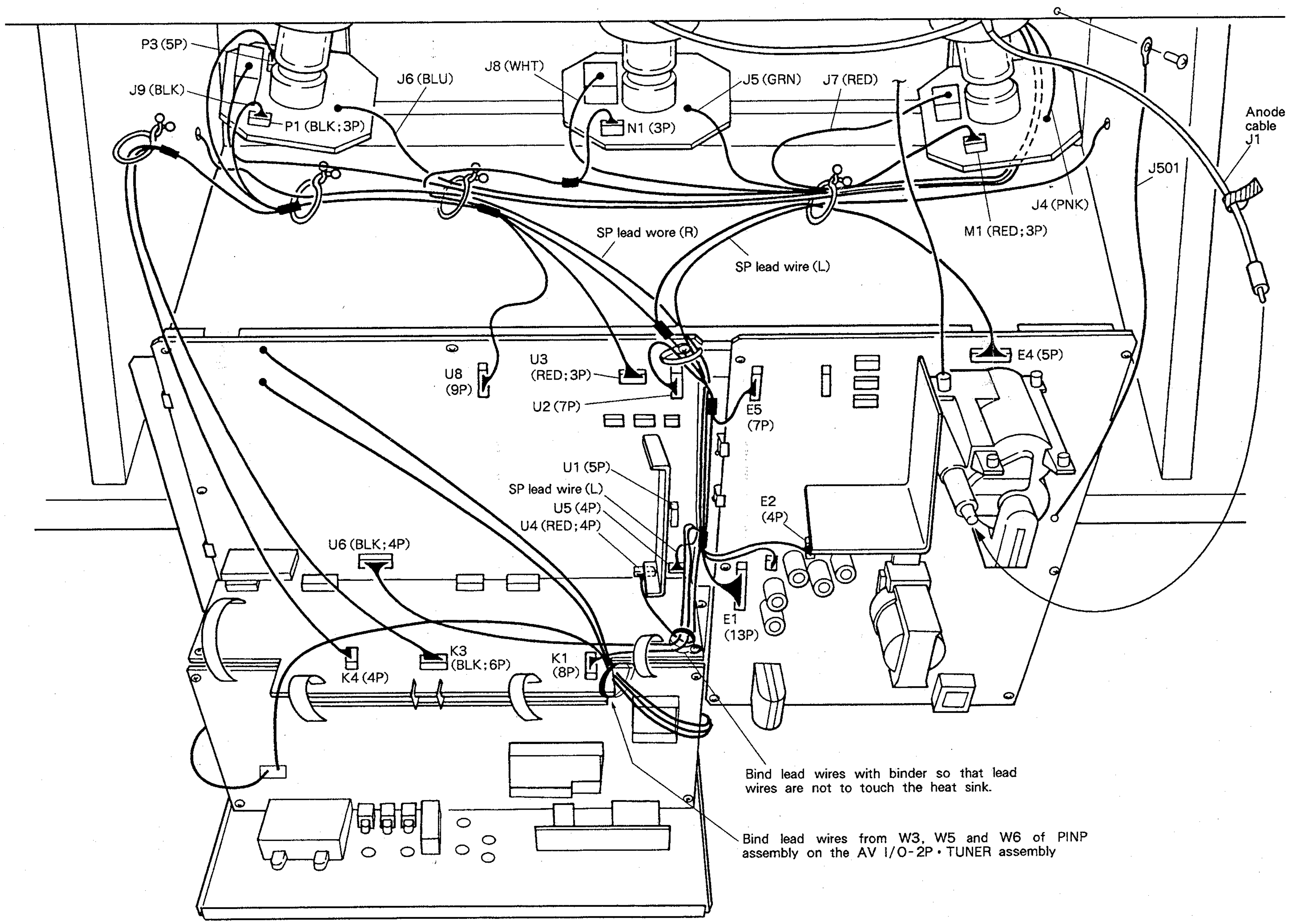

POWER SUPPLY • DEFLECTION ASSEMBLY (AWV1146)
L651
T651
FU651
AC CLK
D651 – D655
+12V STB
D667
RY652
MICOM SECTION
CN401
Pin 3 (RELAY)
R269 R275
1Ω 1Ω
(5W) (5W)
L653
FU652
C722
820
/200
D657
Q657
R274
C716
IC651
R272
1
2
4
3
R276 10k
R277
3.9k
D658
⑤ RELAY (RY652) ON DETECTION CIRCUIT
L652
RY651
D662
Q651
R262
D663
Q654
R257
Q656
R271
D665
R270
R259
C709
SWITCHING REGULATOR
IC652, Q658 – Q661
L666
R310
10
Q662
Q663
D686
D687
Q664
R313
2.2k
To heater
② CRT HEATER VOLTAGE DETECTION CIRCUIT
+135V
③ +135V POWER SUPPLY DETECTION
+13.5V
Q655
Q653
Q652
D656
R266
160k
R258
2.4k
R255
6.2k
R254
3.9k
R253 1k
VERTICAL • VIDEO • AUDIO ASSEMBLY (AWZ2961)
④ ANTI-BURNING CIRCUIT OF THE CRT
+13.5V
E1
U1
D126
Q154
R305
1k
C208
To V.DY
D127
R302
56k
C209
R334
① X-RAY PROTECTION CIRCUIT
+13.5V
D553
R108
Q551
Q552
D573
VR591
D552
R106
1.2k
T553 (FBT)
10
9
4
3
8
6

Fig. 13-1 BLOCK DIAGRAM OF PROTECTION CIRCUIT

14. WIRING DIAGRAM

When reassembling the wiring rods of this set once disassembled, be sure to recover the styling of wiring rods as it was. The wiring rods that are the most important for styling are the focus screen wires and the anode cable. The following wiring diagram is provided only for reference, and subject to possible changes without notice. Care should be taken so that the wiring rods styling of this set is recovered as it was before disassembling.

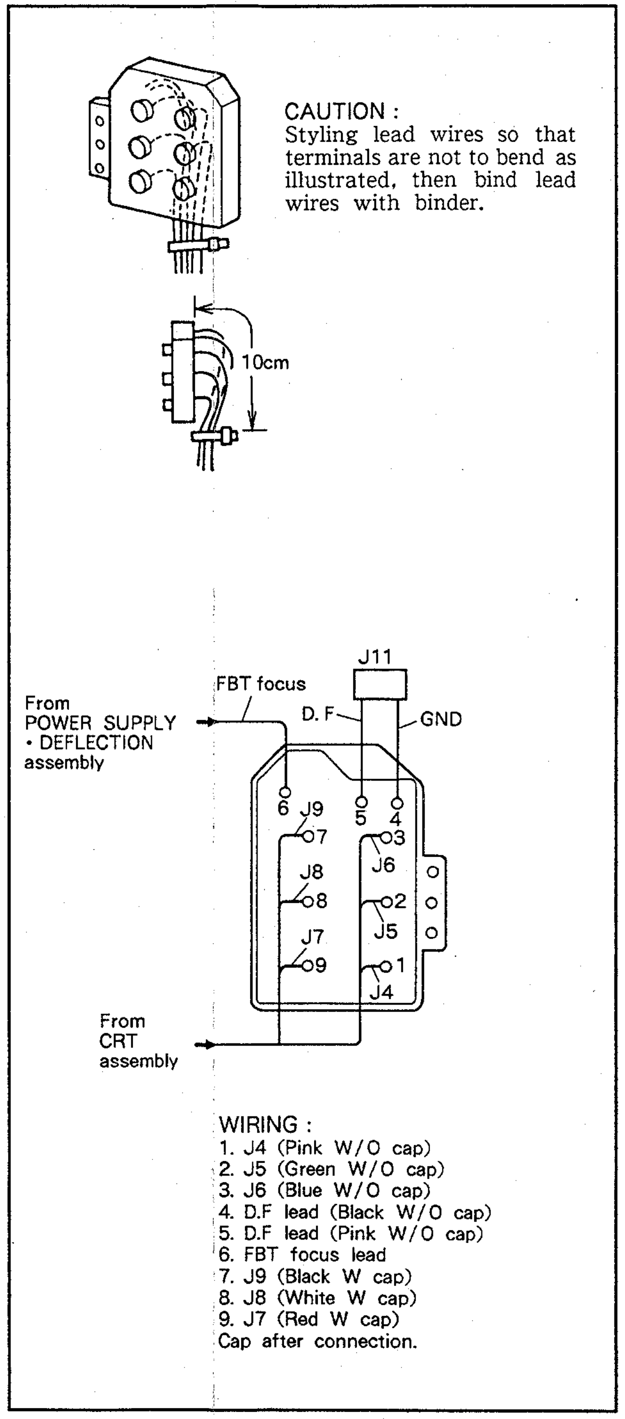

P3 (5P)
J9 (BLK)
P1 (BLK; 3P)
J6 (BLU)
J8 (WHT)
N1 (3P)
J5 (GRN)
J7 (RED)
Anode cable J1
J501
J4 (PNK)
M1 (RED; 3P)
SP lead wore (R)
SP lead wire (L)
U8 (9P)
U3 (RED; 3P)
U2 (7P)
E5 (7P)
E4 (5P)
U1 (5P)
SP lead wire (L)
U5 (4P)
U4 (RED; 4P)
E2 (4P)
U6 (BLK; 4P)
E1 (13P)
K4 (4P)
K3 (BLK; 6P)
K1 (8P)

Bind lead wires with binder so that lead wires are not to touch the heat sink.

Bind lead wires from W3, W5 and W6 of PINP assembly on the AV I/O-2P • TUNER assembly

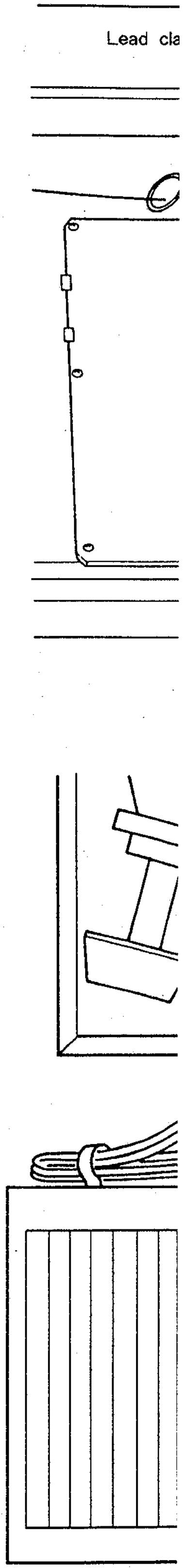
Fig. 14-1 Wiring diagram (Inside view 1)

VR1 connection

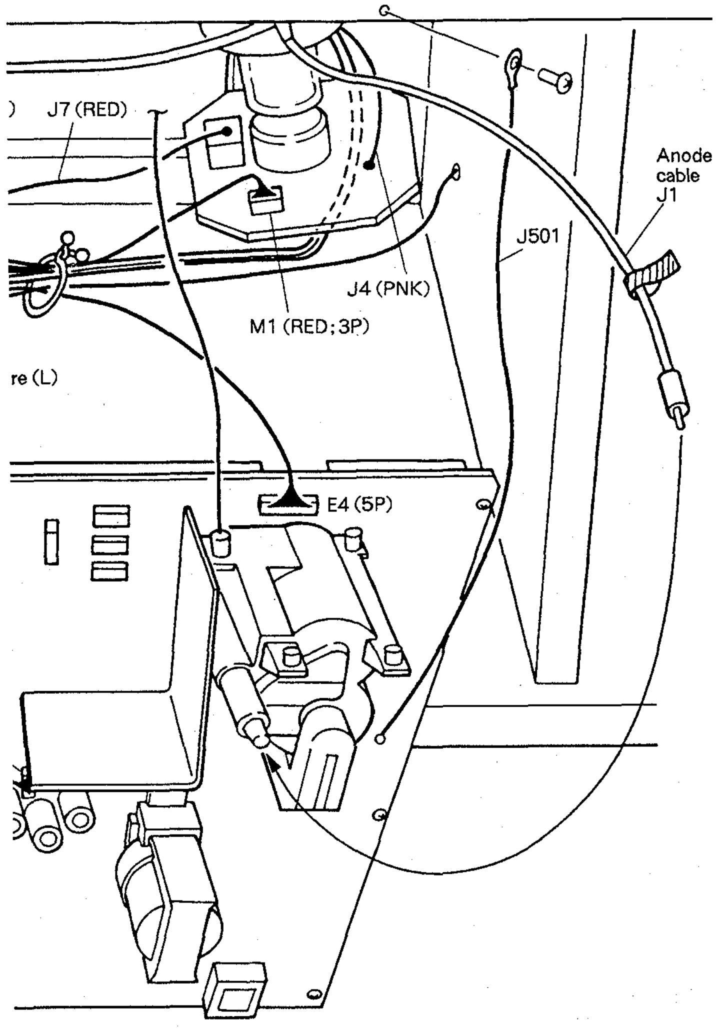

10cm
J11
FBT focus
D. F
GND
From POWER SUPPLY • DEFLECTION assembly
From CRT assembly
6
J9
7
J8
8
J7
9
5
4
3
J6
2
J5
1
J4

CAUTION :
Styling lead wires so that terminals are not to bend as illustrated, then bind lead wires with binder.

WIRING :
1. J4 (Pink W/O cap)
2. J5 (Green W/O cap)
3. J6 (Blue W/O cap)
4. D.F lead (Black W/O cap)
5. D.F lead (Pink W/O cap)
6. FBT focus lead
7. J9 (Black W cap)
8. J8 (White W cap)
9. J7 (Red W cap)
Cap after connection.



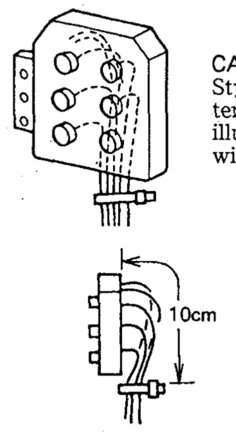
CONVERGENCE


J7 (RED)
Anode cable J1
J501
J4 (PNK)
M1 (RED; 3P)
re (L)
E4 (5P)

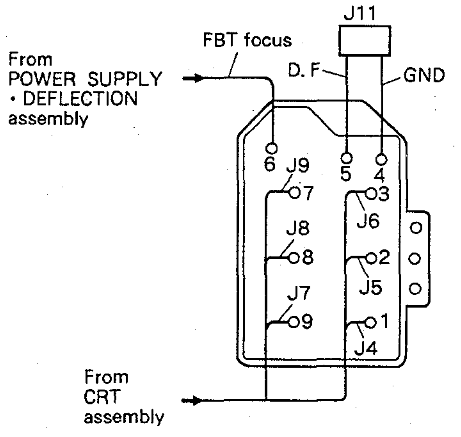
ɟ wires with binder so that lead
ː not to touch the heat sink.

l wires from W3, W5 and W6 of PINP
on the AV I/O-2P・TUNER assembly

VR1 connection



CAUTION :
Styling lead wires so that terminals are not to bend as illustrated, then bind lead wires with binder.


J11
FBT focus
D. F
GND
From POWER SUPPLY・DEFLECTION assembly
6 J9
5
4
7
3
J6
J8
8
2
J7
J5
9
1
J4
From CRT assembly

WIRING :
1. J4 (Pink W/O cap)
2. J5 (Green W/O cap)
3. J6 (Blue W/O cap)
4. D.F lead (Black W/O cap)
5. D.F lead (Pink W/O cap)
6. FBT focus lead
7. J9 (Black W cap)
8. J8 (White W cap)
9. J7 (Red W cap)
Cap after connection.

CAUTION : Anode cable is not to slacked at the CRT side

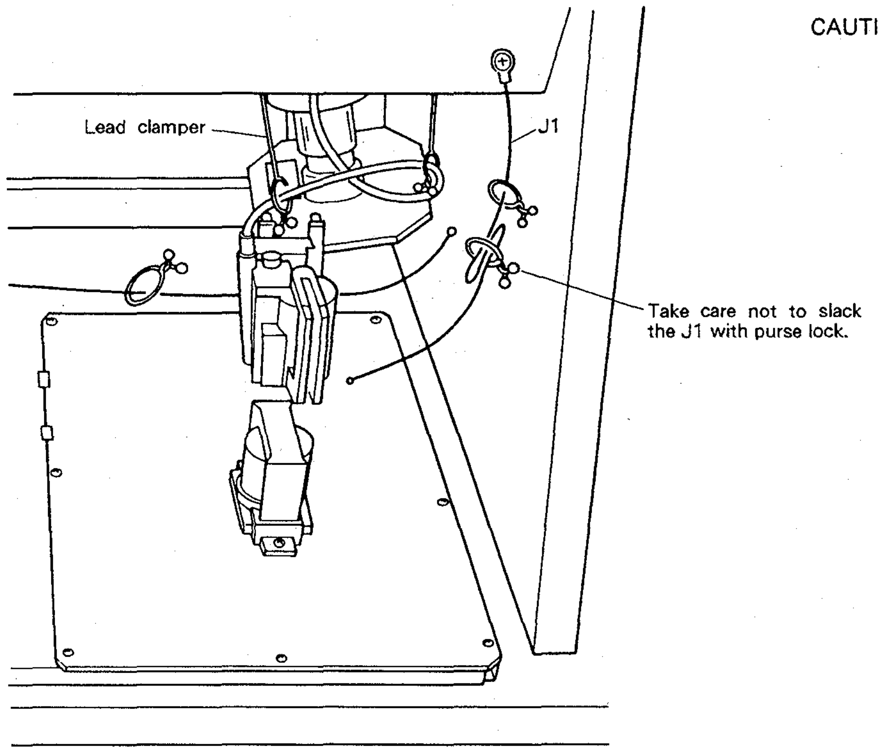
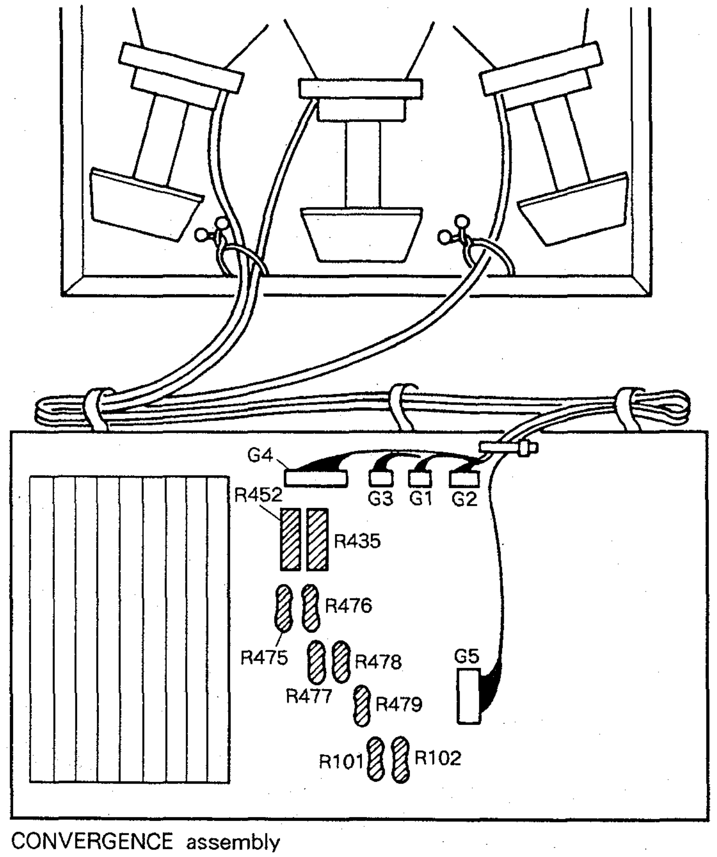

Lead clamper
J1
Take care not to slack the J1 with purse lock.

Fig. 14-2 Wiring diagram (Inside view 2)

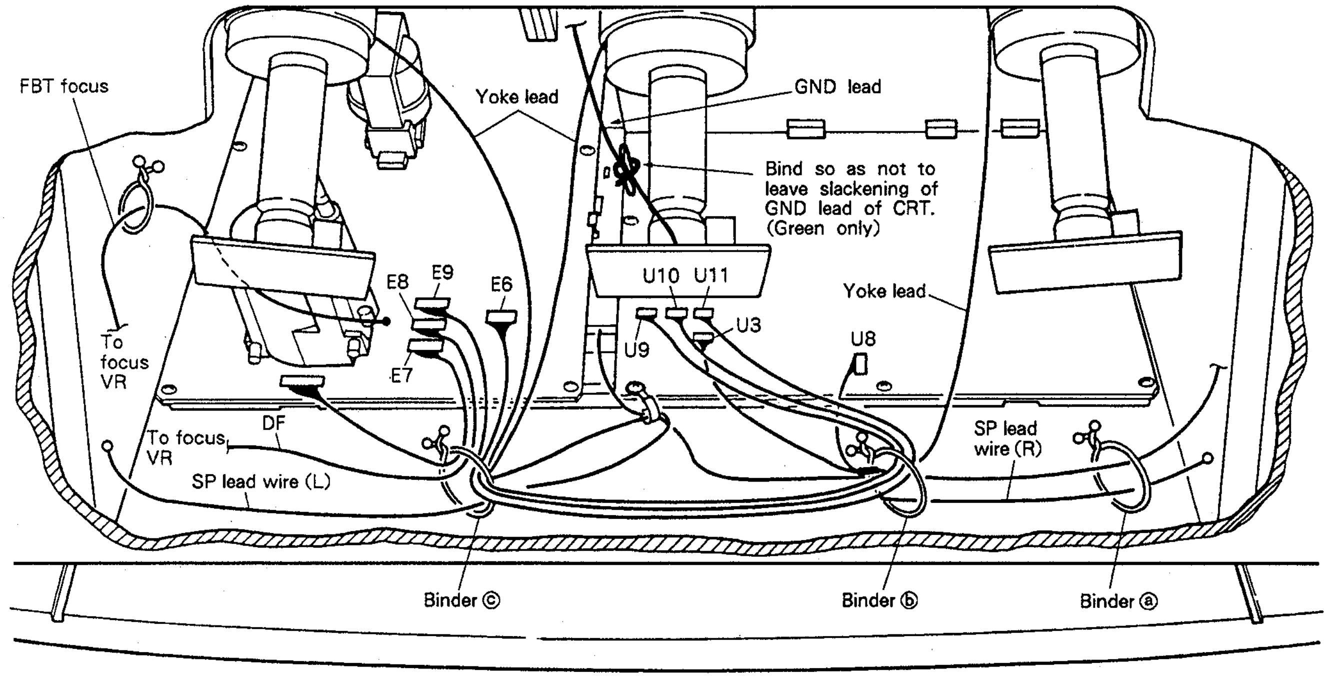

G4
R452
G3
G1
G2
R435
R476
R475
R478
R477
R479
G5
R101
R102
CONVERGENCE assembly

CAUTION :
- Bind lead wires nearby G2 with binder so that lead wires are not to touch the resistors R101, R102, R452, R453 and R475 – R479.
- Bind all lead wires of the CONVERGENCE assembly with binders.

Fig. 14-3 Wiring diagram (Front view 1)

Note :

- Bind lead wires of E7, E8 and E9 (red and black) with binder ⓒ so that lead wires are not to slacked.
- Bind lead wires of U9, U10 and U11 (brown and black) with binder ⓑ so that lead wires are not to slacked.
- Bind SP lead wire (L) binder ⓒ so that lead wire is not to slacked.
- SP lead wire (R) pass thru the binder ⓐ and ⓒ, and bind lead wire with binder ⓐ so that lead wire is not to slacked.


FBT focus
Yoke lead
GND lead
Bind so as not to leave slackening of GND lead of CRT. (Green only)
E8
E9
E6
U10
U11
Yoke lead
U3
U9
U8
E7
To focus VR
To focus VR
DF
SP lead wire (L)
SP lead wire (R)
Binder ⓒ
Binder ⓑ
Binder ⓐ

CAUTION: When connecting the connectors E7 – E9 and U9 – U11, wiring SP lead wires (L) and (R) so that lead wires are in front of the P. C. board assembly.

Fig. 14-4 Wiring diagram (Front view 2)

15. FOR SD-P404-K/KUX1C TYPE

NOTES :
- Parts without part number cannot be supplied.
- Parts marked by "◉" are not always kept in stock. Their delivery time may be longer than usual or they may be unavailable.
- The ⚠ mark found on some component parts indicates the importance of the safety factor of the part. Therefore, when replacing, be sure to use parts of identical designation.
- When ordering resistors, first convert resistance values into code form as shown in the following examples.

  Ex.1 When there are 2 effective digits (any digit apart from 0), such as 560 ohm and 47k ohm (tolerance is shown by J = 5 %, and K = 10 %).
  560 Ω→56 × 10^1 →561 ············ RD1/4PS$\boxed{5}\boxed{6}\boxed{1}$J
  47k Ω→47 × 10^3 →473 ············ RD1/4PS$\boxed{4}\boxed{7}\boxed{3}$J
  0.5 Ω→0R5 ············ RN2H$\boxed{0}\boxed{R}\boxed{5}$K
  1 Ω→010 ············ RS1P$\boxed{0}\boxed{1}\boxed{0}$K

  Ex.2 When there are 3 effective digits (such as in high precision metal film resistors).
  5.62k Ω→562 × 10^1 →5621 ············ RN1/4SR$\boxed{5}\boxed{6}\boxed{2}\boxed{1}$F
- Parts marked by ☆ are important parts which use X－rays.
  If any of these parts need to be replaced, always replace with specified parts.

15.1 CONTRAST OF MISCELLANEOUS PARTS

The SD-P404-K/KUX1C type is the same as the SD-P4043-K/KUX1C type with the exception of the following sections.

Mark	Symbol & Description	Part No.		Remarks
		SD-P4043-K /KUX1C type	SD-P404-K /KUX1C type	
	Plate A	AAK1976	AAK1974	
	Plate D	AAK1977	AAK1975	
	Plastic ribet	AEC-441	• • • • •	
	Upper carton	AHD1874	AHD1859	
	Operating instructions (English)	ARB1252	ARB1253	
	Remote control unit	AXD1159	AXD1157	
	Cover	AZA1138	PZN1001	For remote control unit
	Screw	VBZ30P060FMC	• • • • •	
	PINP assembly	AWZ2954	• • • • •	
	PINP SUB assembly	AWZ3025	• • • • •	
	VERTICAL • VIDEO AUDIO assembly	AWZ2961	AWZ2960	
☆	POWER SUPPLY • DEFLECTION assembly	AWV1146	AWV1145	
	AV I/O-2P • TUNER assembly	AWZ2972	AWZ2971	
	MICOM • SURROUND assembly	AWZ2976	• • • • •	
	MICOM assembly	• • • • •	AWZ2975	
	LOGIC assembly	AWZ2955	• • • • •	
	PINP SELECT assembly	AWZ2956	• • • • •	

POWER SUPPLY • DEFLECTION assembly (AWV1145)

The POWER SUPPLY • DEFLECTION assembly (AWV1145) is the same as the POWER SUPPLY • DEFLECTION assembly (AWV1146) with the exception of the following sections.

Mark	Symbol & Description	Part No.		Remarks
		AWV1146	AWV1145	
	C734	CCDSL221K500	• • • • •	
	C735	CEHAQ471M16	• • • • •	
	D679	RL2Z	• • • • •	
	L654,L655 Ferrite bead	ATX-028	• • • • •	

MICOM assembly (AWZ2975)

The MICOM assembly (AWZ2975) is the same as the MICOM・SURROUND assembly (AWZ2976) with the exception of the following sections.

Mark	Symbol & Description	Part No.		Remarks
		AWZ2976	AWZ2975	
	●SURROUND section			
	C311 – C314	CEAS010M50	• • • • •	
	C316	CEAS102M16	• • • • •	
	C317	CQMA272J50	• • • • •	
	C318,C320	CQMA561J50	• • • • •	
	C319,C330	CQMA822J50	• • • • •	
	C321	CQMA153J50	• • • • •	
	C322	CQMA102J50	• • • • •	
	C323	CQMA273J50	• • • • •	
	C324	CQMA182J50	• • • • •	
	C325	CQMA393J50	• • • • •	
	C326	CQMA272J50	• • • • •	
	C327	CQMA683J50	• • • • •	
	C328	CQMA472J50	• • • • •	
	C329	CFTXA104J50	• • • • •	
	C331	CFTXA184J50	• • • • •	
	C332	CQMA123J50	• • • • •	
	C333	CEAS470M16	• • • • •	
	C334	CEAS220M16	• • • • •	
	C336	CEAS221M16	• • • • •	
	C337,C338	CKDYF103Z50	• • • • •	
	C339 – C342	CEANP010M50	• • • • •	
	C343,C344	CEAS4R7M50	• • • • •	
	D301	RD12ESB3	• • • • •	
	IC301	PA0042	• • • • •	
	IC302	LA3607	• • • • •	
	IC303	M5218L	• • • • •	
	IC304	BU4066BL	• • • • •	
	Q301,Q302	RN1203	• • • • •	
	Q303	RN2203	• • • • •	
	R801 – R804,R812,R813,R820,R825,R826	RD1/8PM223J	• • • • •	
	R805,R806,R811	RD1/8PM473J	• • • • •	
	R807,R808	RD1/8PM331J	• • • • •	
	R809,R810,R814,R830,R832,R833	RD1/8PM104J	• • • • •	
	R815,R816,R829,R831	RD1/8PM102J	• • • • •	
	R817,R827,R828	RD1/8PM103J	• • • • •	
	R818	RD1/8PM222J	• • • • •	
	R821	RD1/8PM333J	• • • • •	
	R822	RD1/8PM153J	• • • • •	
	R819	RD1/4PMFL220J	• • • • •	
	●MICOM section			
	R1253 – R1256,R1290,R1363,R1364,R1366	RD1/8PM222J	• • • • •	
	R1269	RD1/8PM682J	RD1/8PM182J	

VERTICAL・VIDEO・AUDIO assembly (AWZ2960)

The VERTICAL・VIDEO・AUDIO assembly (AWZ2960) is the same as the VERTICAL・VIDEO・AUDIO assembly (AWZ2961) with the exception of the following sections.

Mark	Symbol & Description	Part No.		Remarks
		AWZ2961	AWZ2960	
	C110	CCDUJ220J50	CQMA681K50	
	C290	• • • • •	CEAS010M50	
	C244,C245	CCDUJ331J50	• • • • •	
	D154,D261	1SS252	• • • • •	
	Q114,Q116,Q255	2SA933S	• • • • •	
	Q253,Q254	2SC3327	• • • • •	
	R106	RD1/8PM332J	RD1/8PM472J	
	R157,R178,R179,R448,R449,R452	RD1/8PM101J	• • • • •	
	R161,R170	RD1/8PM681J	• • • • •	
	R182,R192	• • • • •	RD1/8PM101J	
	R475	RD1/8PM472J	• • • • •	
	R485	RD1/8PM105J	• • • • •	
	R476	RD1/8PM302J	• • • • •	
	R477	RD1/8PM153J	• • • • •	
	R478	RD1/8PM912J	• • • • •	
	R482	RD1/8PM471J	• • • • •	
	R781,R782,R791	RD1/8PM103J	• • • • •	
	R788	RD1/8PM102J	RD1/8PM183J	
	R790	RD1/8PM473J	• • • • •	
	R483	RD1/8PM102J	• • • • •	

AV I/O-2P・TUNER assembly (AWZ2971)

The AV I/O-2P・TUNER assembly (AWZ2971) is the same as the AV I/O-2P・TUNER assembly (AWZ2972) with the exception of the following sections.

Mark	Symbol & Description	Part No.		Remarks
		AWZ2972	AWZ2971	
	●AV I/O section			
	R1154,R1157	RD1/8PM222J	• • • • •	
	R1155,R1171	RD1/8PM102J	• • • • •	
	R1158	RD1/8PM472J	• • • • •	
	R1162	RD1/8PM153J	• • • • •	
	R1173,R1211 – R1214,R1221 – R1223,R1225, R1226,R1420	RD1/8PM223J	• • • • •	
	R1228	RD1/8PM104J	• • • • •	
	R1229	RD1/4PMFL150J	• • • • •	
	C372	CEAS220M16	• • • • •	
	C373	CEAS100M25	• • • • •	
	C387	CEAS220M16	CEJA220M10	
	D353	1SS252	• • • • •	
	Q355,Q357,Q372	2SA933S	• • • • •	
	Q356,Q358,Q371,Q373	2SC1740S	• • • • •	

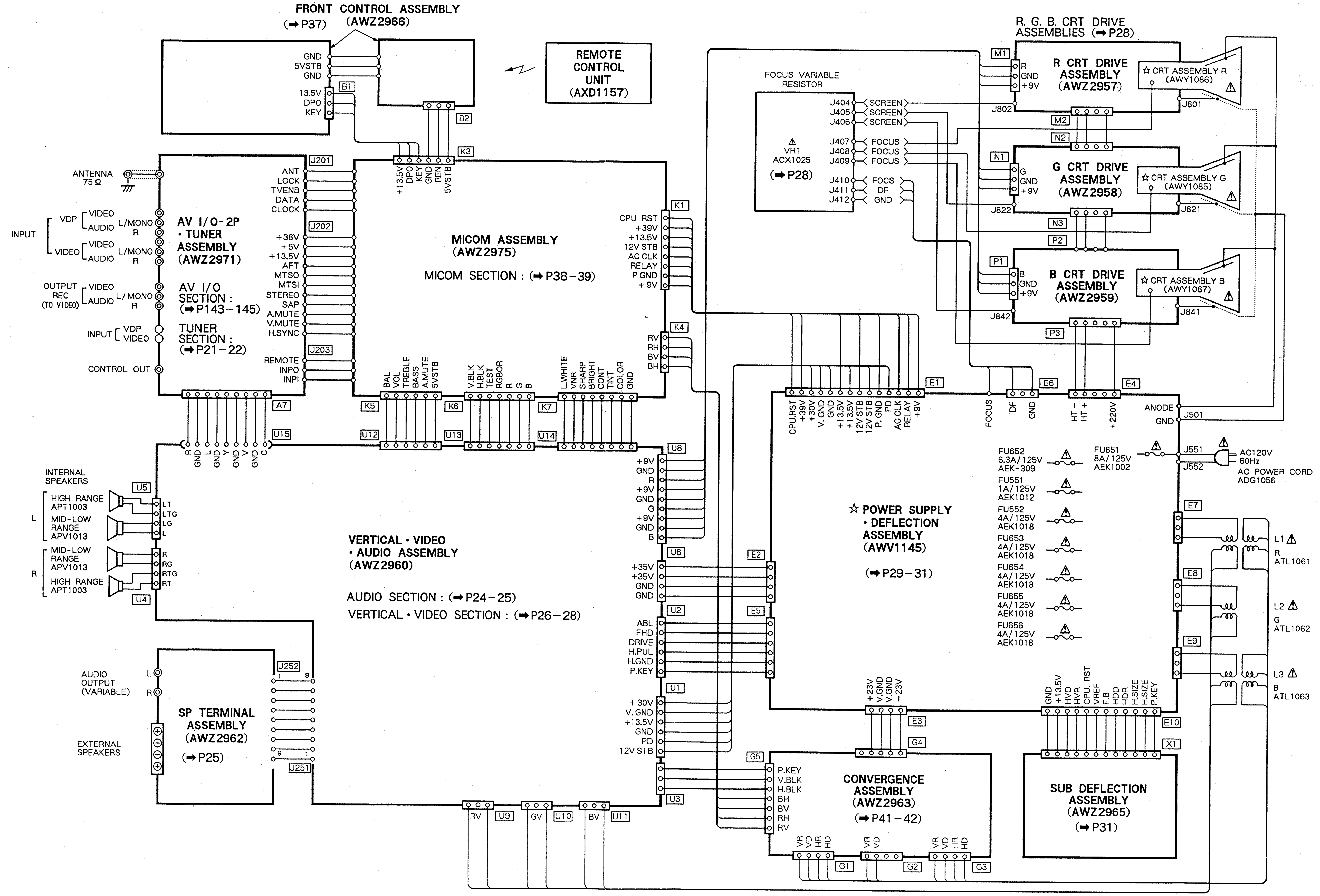
15.2 SCHEMATIC DIAGRAM
1. OVERALL WIRING DIAGRAM

VIDEO・AUDIO

Remarks

NER assembly

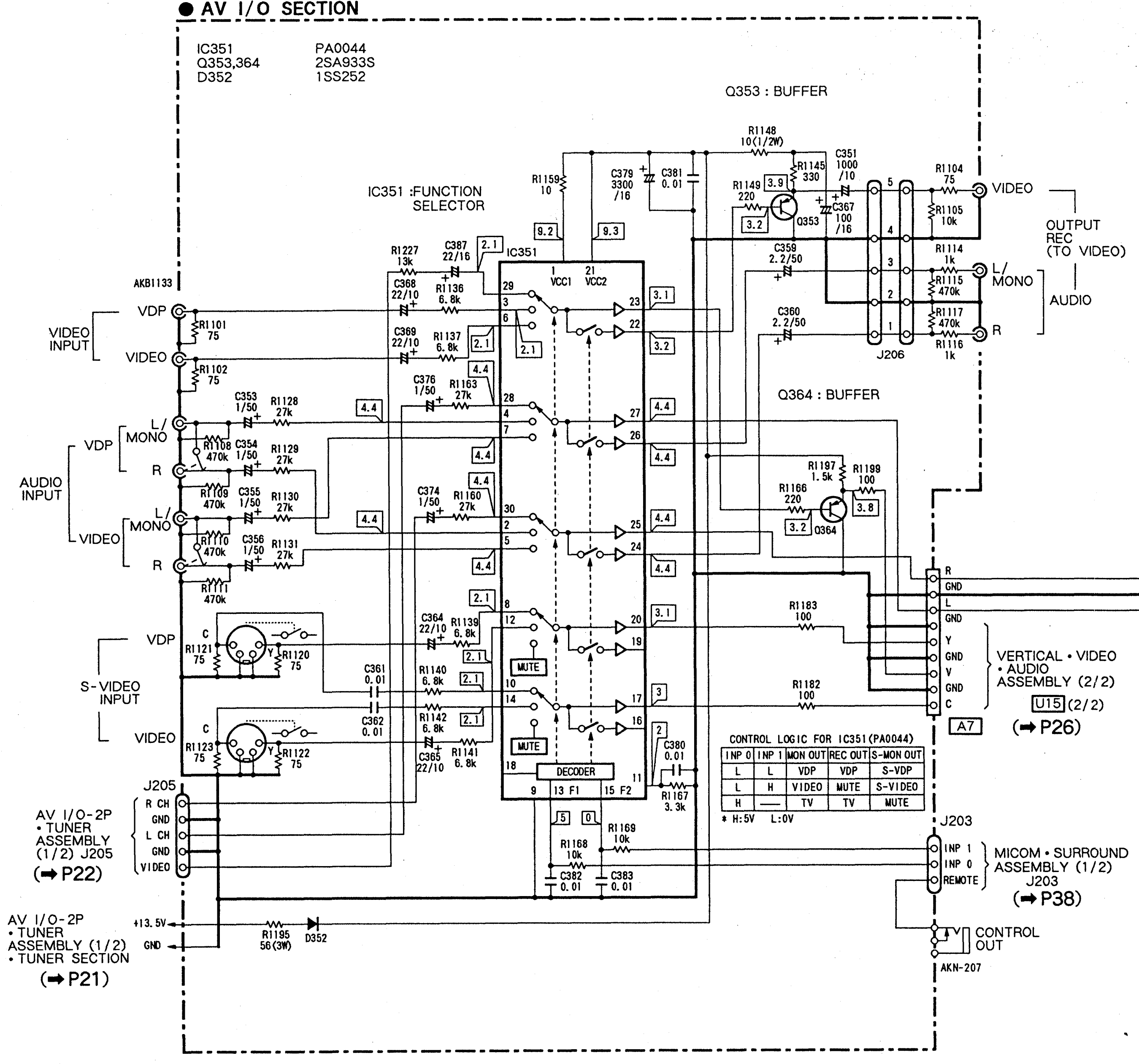
Remarks


A
B
C
D
FRONT CONTROL ASSEMBLY (➡P37) (AWZ2966)
GND
5VSTB
GND
13.5V
DPO
KEY
B1
B2
REMOTE CONTROL UNIT (AXD1157)
K3
+13.5V DPO KEY GND REN 5VSTB
ANTENNA 75Ω
J201
ANT LOCK TVENB DATA CLOCK
J202
+38V +5V +13.5V AFT MTSO MTSI STEREO SAP A.MUTE V.MUTE H.SYNC
J203
REMOTE INPO INPI
INPUT VDP VIDEO AUDIO L/MONO R
VIDEO VIDEO AUDIO L/MONO R
OUTPUT REC (TO VIDEO) VIDEO AUDIO L/MONO R
INPUT VDP VIDEO
CONTROL OUT
AV I/O-2P・TUNER ASSEMBLY (AWZ2971)
AV I/O SECTION : (➡P143-145)
TUNER SECTION : (➡P21-22)
A7
MICOM ASSEMBLY (AWZ2975)
MICOM SECTION : (➡P38-39)
K1
CPU RST +39V +13.5V 12V STB AC CLK RELAY P GND +9V
K4
RV RH BV BH
K5 BAL VOL TREBLE BASS A.MUTE 5VSTB
K6 V.BLK H.BLK TEST RGBOR R G B
K7 L.WHITE VNR SHARP BRIGHT CONT TINT COLOR GND
U15 R GND L GND Y GND V GND C
U12
U13
U14
U8 +9V GND R +9V GND G +9V GND B
INTERNAL SPEAKERS
U5
L HIGH RANGE APT1003 MID-LOW RANGE APV1013
LT LTG LG L
R MID-LOW RANGE APV1013 HIGH RANGE APT1003
R RG RTG RT
U4
VERTICAL・VIDEO・AUDIO ASSEMBLY (AWZ2960)
AUDIO SECTION : (➡P24-25)
VERTICAL・VIDEO SECTION : (➡P26-28)
U6 +35V +35V GND GND
U2 ABL FHD DRIVE H.PUL H.GND P.KEY
U1 +30V V.GND +13.5V GND PD 12V STB
U3
RV U9 GV U10 BV U11
AUDIO OUTPUT (VARIABLE) L R
EXTERNAL SPEAKERS
SP TERMINAL ASSEMBLY (AWZ2962) (➡P25)
J252 1 9
9 1 J251
FOCUS VARIABLE RESISTOR
⚠ VR1 ACX1025 (➡P28)
J404 J405 J406 SCREEN SCREEN SCREEN
J407 J408 J409 FOCUS FOCUS FOCUS
J410 J411 J412 FOCS DF GND
R. G. B. CRT DRIVE ASSEMBLIES (➡P28)
M1 R GND +9V
R CRT DRIVE ASSEMBLY (AWZ2957)
☆CRT ASSEMBLY R (AWY1086) ⚠
J802 J801 M2
N2
N1 G GND +9V
G CRT DRIVE ASSEMBLY (AWZ2958)
☆CRT ASSEMBLY G (AWY1085) ⚠
J822 J821 N3
P2
P1 B GND +9V
B CRT DRIVE ASSEMBLY (AWZ2959)
☆CRT ASSEMBLY B (AWY1087) ⚠
J842 J841 P3
E1 CPU.RST +39V +30V V.GND GND +13.5V +13.5V 12V STB P.GND PD AC CLK RELAY +9V
FOCUS DF GND E6
HT- HT+ +220V E4
ANODE GND J501
FU652 6.3A/125V AEK-309 ⚠
FU651 8A/125V AEK1002 ⚠
J551 J552
⚠ AC120V 60Hz AC POWER CORD ADG1056
FU551 1A/125V AEK1012
FU552 4A/125V AEK1018
FU653 4A/125V AEK1018
FU654 4A/125V AEK1018
FU655 4A/125V AEK1018
FU656 4A/125V AEK1018
☆POWER SUPPLY・DEFLECTION ASSEMBLY (AWV1145)
(➡P29-31)
E2
E5
E7
E8
E9
L1 ⚠ R ATL1061
L2 ⚠ G ATL1062
L3 ⚠ B ATL1063
+23V V.GND V.GND -23V E3
G4
GND +13.5V HVD HVR CPU. RST VREF F.B HDD HDR H.SIZE H.SIZE P.KEY E10
X1
G5 P.KEY V.BLK H.BLK BH BV RH RV
CONVERGENCE ASSEMBLY (AWZ2963) (➡P41-42)
VR VD HR HD G1
VR VD G2
VR VD HR HD G3
SUB DEFLECTION ASSEMBLY (AWZ2965) (➡P31)

2. AV I/O-2P • TUNER ASSEMBLY (2/2 : AV I/O SECTION), VERTICAL • VIDEO • AUDIO ASSEMBLY (1/2 : AUDIO SECTION) AND SP TERMINAL ASSEMBLY

AV I/O-2P • TUNER ASSEMBLY (2/2) (AWZ2971)

● AV I/O SECTION


IC351 PA0044
Q353,364 2SA933S
D352 1SS252
Q353 : BUFFER
IC351 :FUNCTION SELECTOR
Q364 : BUFFER
AKB1133
VIDEO INPUT
VDP
VIDEO
AUDIO INPUT
L/MONO
R
S-VIDEO INPUT
J205
AV I/O-2P • TUNER ASSEMBLY (1/2) J205 (➡P22)
R CH
GND
L CH
GND
VIDEO
AV I/O-2P • TUNER ASSEMBLY (1/2) • TUNER SECTION (➡P21)
+13.5V
GND
R1195 56(3W)
D352
IC351
VCC1
VCC2
MUTE
DECODER
F1
F2
J206
VIDEO
OUTPUT REC (TO VIDEO)
L/MONO
AUDIO
R
VERTICAL • VIDEO • AUDIO ASSEMBLY (2/2)
U15 (2/2)
(➡P26)
A7
J203
INP 1
INP 0
REMOTE
MICOM • SURROUND ASSEMBLY (1/2) J203 (➡P38)
CONTROL OUT
AKN-207

CONTROL LOGIC FOR IC351(PA0044)

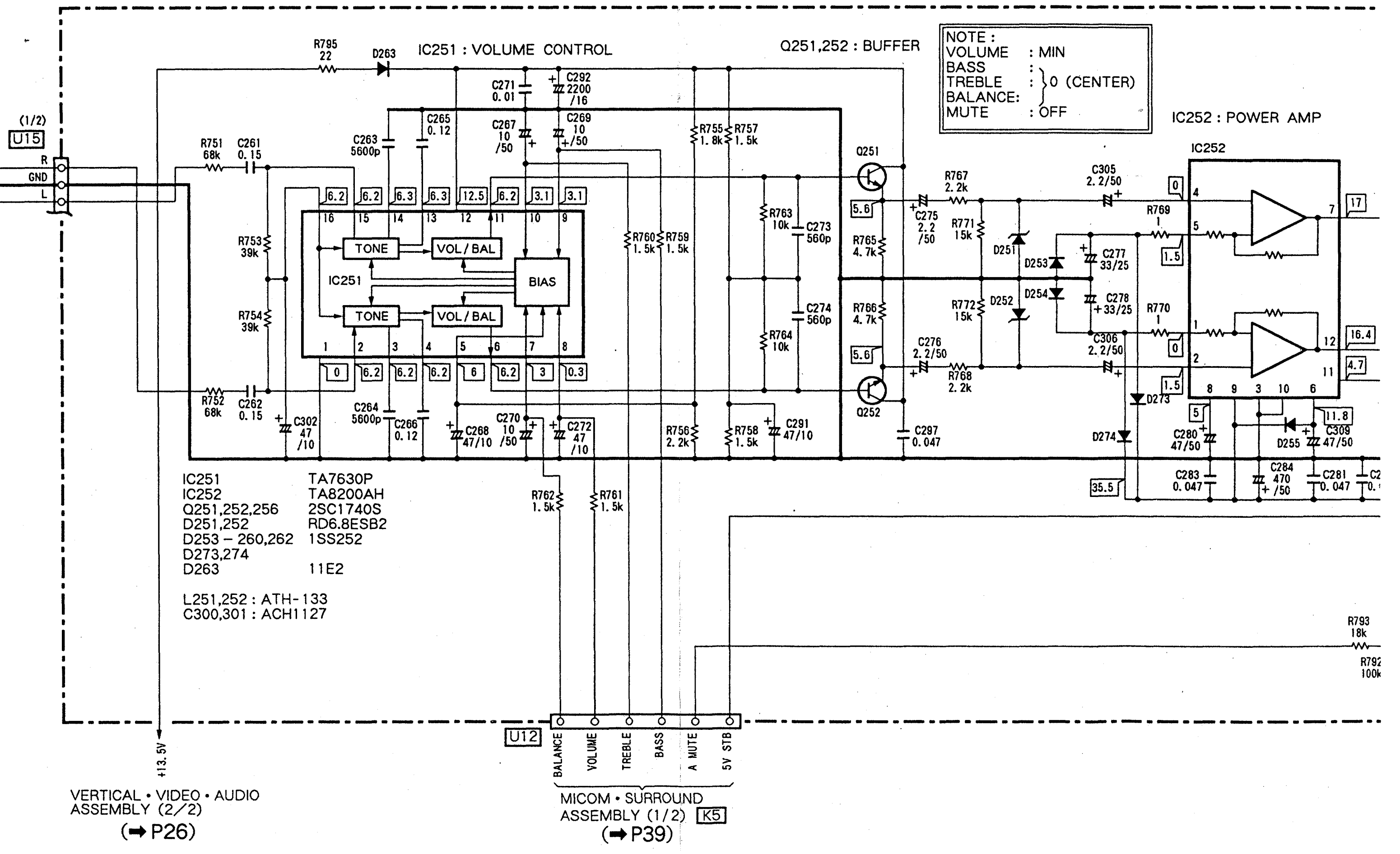
INP 0	INP 1	MON OUT	REC OUT	S-MON OUT
L	L	VDP	VDP	S-VDP
L	H	VIDEO	MUTE	S-VIDEO
H	——	TV	TV	MUTE

* H:5V L:0V

Note :As to the other schematic diagrams and P. C. boards pattern, refer to the section "7. SCHEMATIC AND P. C. BOARDS DIAGRAM" (pages 21 – 66.)

VERTICAL • VIDEO • AUDIO ASSEMBLY (1/2) (AWZ2960)

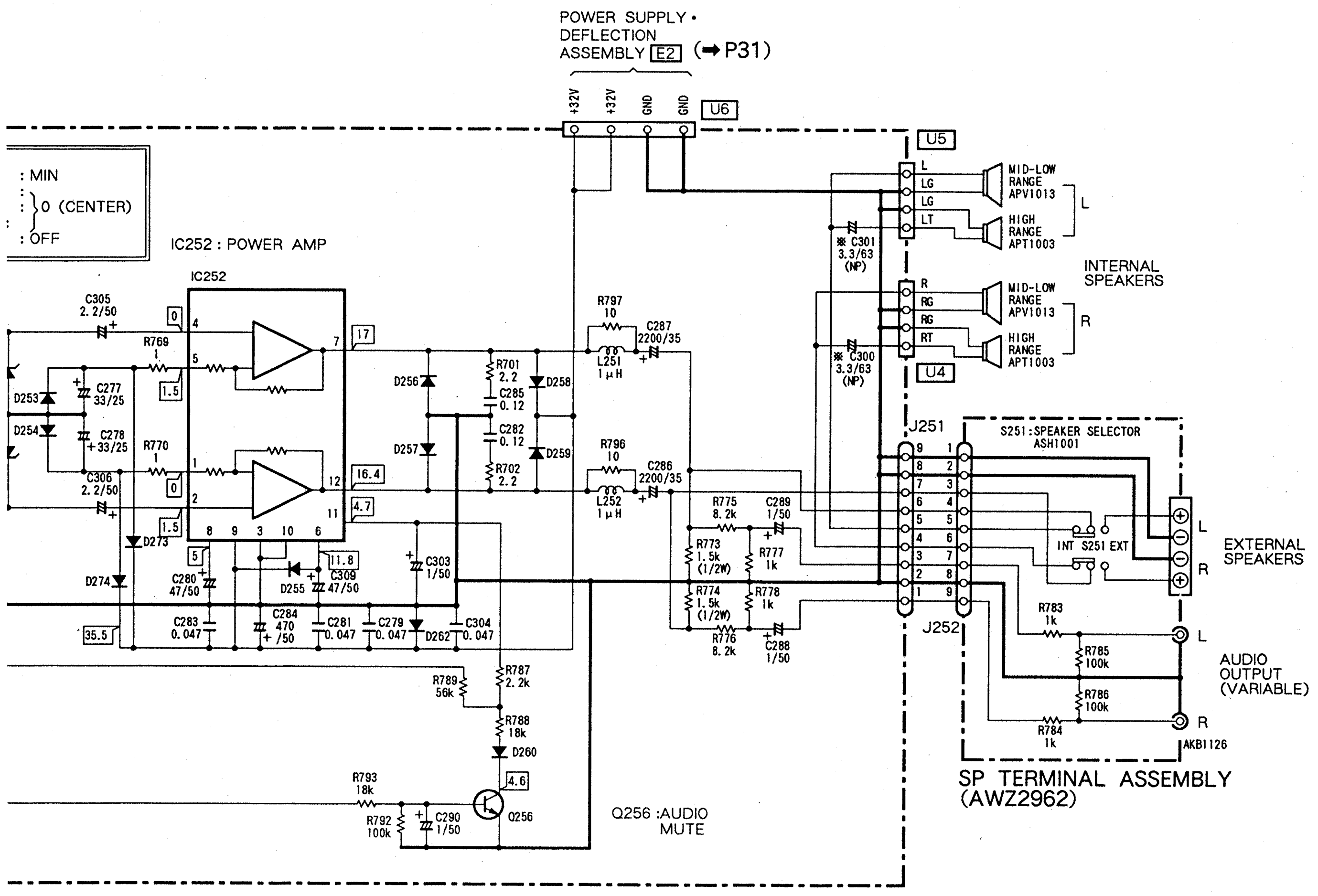
● AUDIO SECTION


(1/2)
U15
R
GND
L
IC251 : VOLUME CONTROL
Q251,252 : BUFFER
IC252 : POWER AMP
IC252
D263
TONE
VOL/BAL
BIAS
IC251
Q251
Q252
D251
D252
D253
D254
D255
D273
D274
+13.5V
VERTICAL • VIDEO • AUDIO ASSEMBLY (2/2) (➡P26)
U12
BALANCE
VOLUME
TREBLE
BASS
A MUTE
5V STB
MICOM • SURROUND ASSEMBLY (1/2) K5 (➡P39)

NOTE :
VOLUME : MIN
BASS :
TREBLE : }0 (CENTER)
BALANCE:
MUTE : OFF

IC251	TA7630P
IC252	TA8200AH
Q251,252,256	2SC1740S
D251,252	RD6.8ESB2
D253 – 260,262	1SS252
D273,274	
D263	11E2

L251,252 : ATH-133
C300,301 : ACH1127

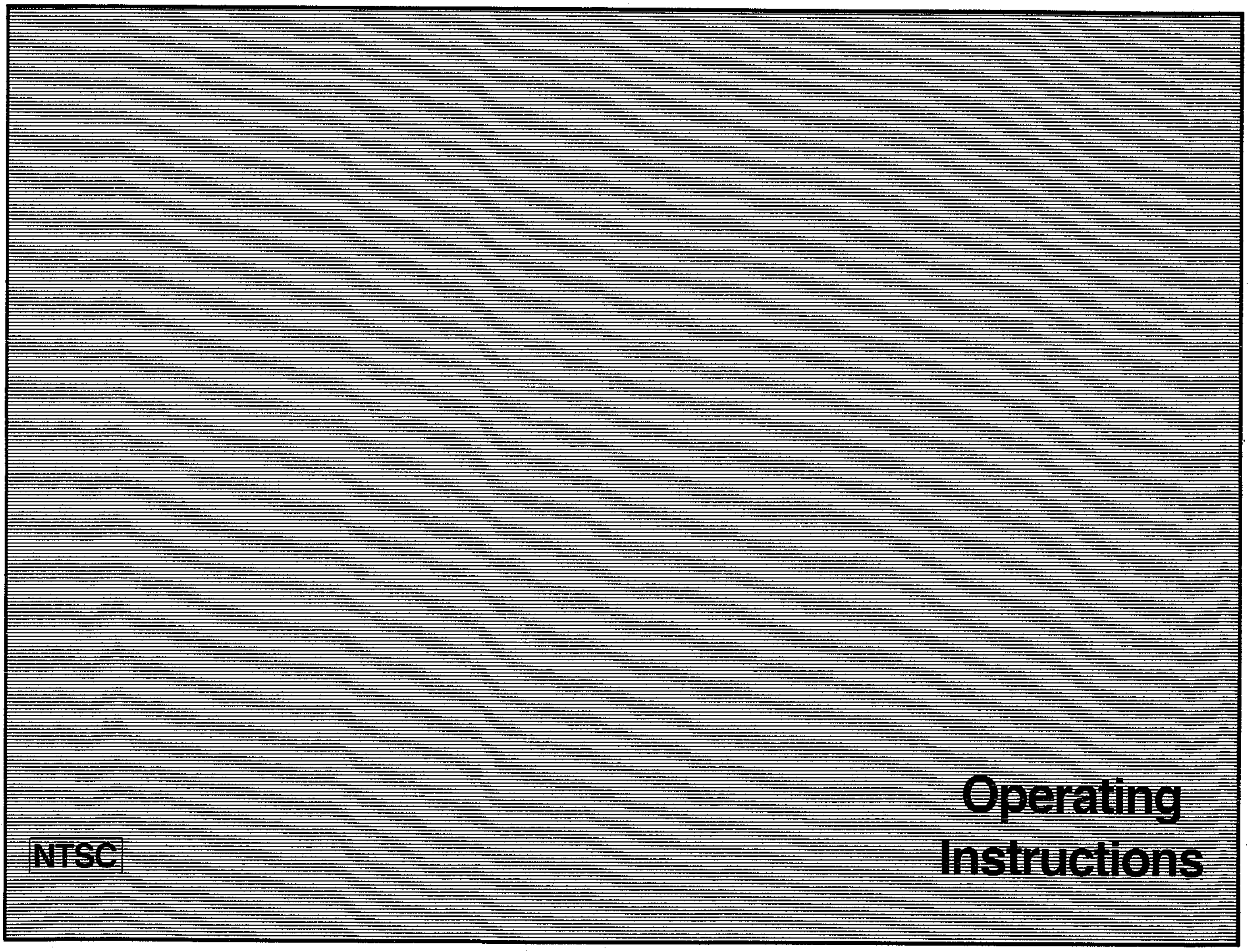

POWER SUPPLY • DEFLECTION ASSEMBLY E2 (➡P31)
+32V
+32V
GND
GND
U6
: MIN
0 (CENTER)
: OFF
IC252 : POWER AMP
IC252
C305
2.2/50
0
4
R769
1
5
1.5
7
17
D253
C277
33/25
D254
C278
33/25
R770
1
1
0
2
1.5
12
16.4
11
4.7
C306
2.2/50
8 9 3 10 6
5
11.8
D273
D274
C280
47/50
D255
C309
47/50
35.5
C283
0.047
C284
470
/50
C281
0.047
C279
0.047
D262
C304
0.047
C303
1/50
D256
D257
R701
2.2
C285
0.12
C282
0.12
R702
2.2
D258
D259
R797
10
L251
1μH
C287
2200/35
R796
10
L252
1μH
C286
2200/35
R775
8.2k
C289
1/50
R773
1.5k
(1/2W)
R777
1k
R774
1.5k
(1/2W)
R778
1k
R776
8.2k
C288
1/50
R789
56k
R787
2.2k
R788
18k
D260
R793
18k
R792
100k
C290
1/50
4.6
Q256
Q256 :AUDIO MUTE
U5
L
LG
LG
LT
※ C301
3.3/63
(NP)
MID-LOW RANGE APV1013
HIGH RANGE APT1003
L
INTERNAL SPEAKERS
R
RG
RG
RT
※ C300
3.3/63
(NP)
MID-LOW RANGE APV1013
HIGH RANGE APT1003
R
U4
J251
9 8 7 6 5 4 3 2 1
1 2 3 4 5 6 7 8 9
J252
S251:SPEAKER SELECTOR
ASH1001
INT S251 EXT
L
R
EXTERNAL SPEAKERS
R783
1k
R785
100k
R786
100k
R784
1k
L
R
AUDIO OUTPUT (VARIABLE)
AKB1126
SP TERMINAL ASSEMBLY
(AWZ2962)

SD-P4043-K

PIONEER®
The future of sound and vision.

PROJECTION MONITOR RECEIVER

SD-P4543/SD-P4043



NTSC

Operating Instructions

Congratulations on your purchase of the PIONEER Projection Monitor Receiver.
If you have not read the cautionary instructions enclosed with these operating instructions, please do so before proceeding.
After learning how to operate the Projection Monitor be sure to keep this manual handy for future reference.

Also, while the official name of the product is the "PROJECTION MONITOR RECEIVER," for the sake of brevity the text refers to it as the "Projection Monitor" or just the "Monitor."

Contents

3 IMPORTANT NOTICE / IMPORTANT
4 PRELIMINARY INSTRUCTIONS
5 FEATURES
6 INSTALLATION
6 OPERATING PRECAUTIONS
7 INSERTING BATTERIES IN THE REMOTE CONTROL UNIT
7 REMOTE CONTROL OPERATION RANGE
8 FRONT PANEL FACILITIES
10 SYSTEM CONNECTION DIAGRAM
12 ANTENNA CONNECTIONS
12 SYSTEM REMOTE CONTROL CONNECTIONS
13 SPEAKERS
14 REMOTE CONTROL UNIT FACILITIES
24 HOW TO ALIGN COLOR CONVERGENCE
27 TV CHANNEL SELECTION
30 MULTI-CHANNEL TV SOUND (MTS)
31 HOW TO RELABEL INPUT DISPLAYS
32 TUNER PRESET
33 PICTURE AND SOUND ADJUSTMENT
34 AV MEMORY
35 DPO ADJUSTMENT
36 TROUBLESHOOTING
37 CARE OF YOUR PROJECTION MONITOR
37 BLOCK DIAGRAM
38 SPECIFICATIONS

IMPORTANT NOTICE

WARNING: TO REDUCE THE RISK OF FIRE OR ELECTRIC SHOCK, DO NOT EXPOSE THIS APPLIANCE TO WET LOCATIONS.

The model number and the serial number of this Projection Monitor are located on the rear panel.
Please write the serial number on the enclosed warranty card and keep it in a safe place for future reference.

NOTE:
There are no user serviceable parts inside the Projection Monitor.

IMPORTANT

The lightning flash with arrowhead, within an equilateral triangle, is intended to alert the user to the presence of uninsulated "dangerous voltage" within the product's enclosure that may be of sufficient magnitude to constitute a risk of electric shock to persons.

CAUTION

RISK OF ELECTRIC SHOCK
DO NOT OPEN

CAUTION:
TO PREVENT THE RISK OF ELECTRIC SHOCK, DO NOT REMOVE COVER OR BACK). NO USER-SERVICEABLE PARTS INSIDE. REFER SERVICING TO QUALIFIED SERVICE PERSONNEL.

The exclamation point within an equilateral triangle is intended to alert the user to the presence of important operating and maintenance (servicing) instructions in the literature accompanying the appliance.

PRELIMINARY INSTRUCTIONS

WHERE TO PUT THE MONITOR

LIGHTING

Bright lights or direct sunlight will dull the picture. Set the monitor so that the screen faces away from windows.

AIR CIRCULATION

Leave space for air to circulate behind the set. Keep away from curtains and other furnishings that could block ventilation.

HEAT DAMAGE

Damage may occur if you leave the set in direct sunlight or near a heater.

OPTIMUM VIEWING DISTANCE

10 to 23 feet is the range recommended for viewing comfort.

POWER SOURCE

This Projection Monitor runs on AC 120 V, standard household current.

NEVER CONNECT THE PROJECTION MONITOR TO OTHER THAN THE SPECIFIED VOLTAGE, OR TO DIRECT CURRENT.

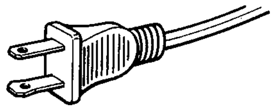
POWER OUTLET

- This set requires an AC 120 volt polarized outlet. The plug will only fit one way. If it will not go in, turn it around and try the other way. If you still are unable to insert the plug, call an electrician to replace the wall socket.
- A damaged cord or plug is a fire hazard. If you notice wear or damage, have it fixed by qualified service personnel.
- Plug directly into the wall socket. Do not use extension cords or other receptacles. Do not overload the outlet; it may cause a fire hazard.

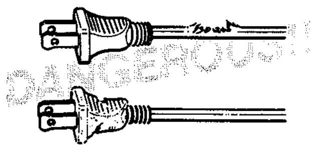
NOTE:

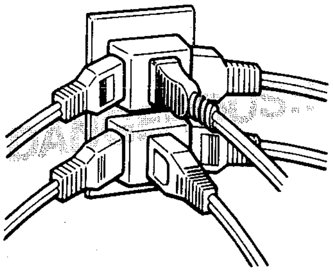
- *Never remove the back cover of the Projection Monitor as this will expose you to dangerously high voltage and other hazards. If the set does not operate properly, unplug it and refer to page 36.*

- POLARIZED PLUG



- DANGEROUS





POWER-CORD CAUTION

Handle the power cord by the plug. Do not pull out the plug by tugging the cord and never touch the power cord when your hands are wet as this could cause a short circuit or electric shock. Do not place the unit, a piece of furniture, etc., on the power cord, or pinch the cord. Never make a knot in the cord or tie it with other cords. The power cords should be routed such that they are not likely to be stepped on. A damaged power cord can cause a fire or give you an electrical shock. Check the power cord once in a while. If you find it damaged, ask your nearest PIONEER authorized service center or your dealer for a replacement.

FEATURES

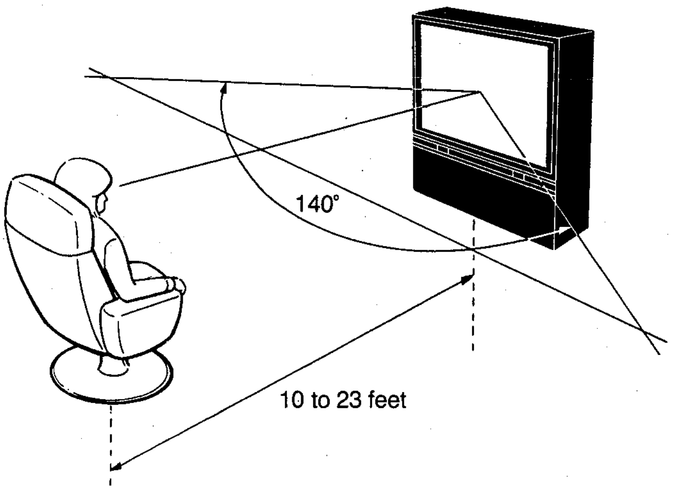
Sharp, Clear Images with 750-line (SD-P4543)/720-line (SD-P4043) Horizontal Resolution (Video input)

- Sharp detail and crisp outlines are realized, thanks to a 10 MHz video bandwidth and Dynamic Picture Control circuitry.
- New, high-resolution picture tubes improve focusing performance by 20%.
- Dynamic focusing circuit enhances resolution at picture edges.

Wide Viewing Range Screen

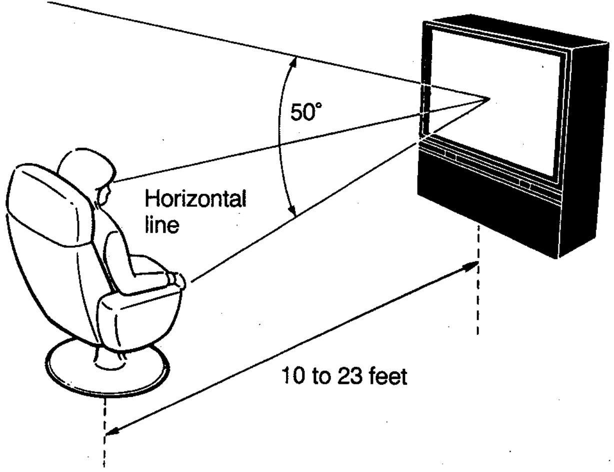
- 140° Horizontal Viewing Angle and 50° Vertical Viewing Angle.

Best Horizontal Viewing Angle



Best Vertical Viewing Angle

Watch from at least ten feet (three meters) away from the screen.
(Optimum viewing distance is 10 to 23 feet.)



You may sometimes see double images or rainbowlike effects if you view from outside of the recommended area shown here.

Amazingly Bright Picture Intensity of 460 (SD-P4543)/550 (SD-P4043) Foot-Lambert

- New, highly-efficient lens system passes more light.
- High-power picture tubes employ advanced anode stabilization circuitry and 6000 pF capacitors.
- Picture realized by newly developed phosphorescent screen for the picture tubes.

Much Greater Contrast with Extended Gradation

- True black reproduction under all conditions, thanks to a Dynamic Black Level Correction Circuit.

Equipped with the Picture-in-Picture function — one or three sub pictures can be displayed on the screen simultaneously

- This function lets you enjoy two or four pictures at the same time.

Microcomputerized Dynamic Picture Optimizer (DPO)

- DPO (Dynamic Picture Optimizer) circuit detects room light and optimizes the TV picture accordingly.

Equipped with the VNR (Video Noise Reduction) system for reducing noise on the screen while watching a TV program or prerecorded video cassette tape

- This system reduces noise on the screen, allowing you to enjoy your favorite programs with improved picture quality.

AV Memory

- After adjusting the picture and sound quality, you can store your settings in "AV memory." Two AV memory settings can be stored and recalled.

High fidelity color reproduction and brighter whiteness is produced by a newly developed Linear White Circuit

- The linear white circuit adjusts the blue phosphor characteristics and aligns the Red, Green and Blue drive circuits. This allows the monitor to reproduce brighter whites and natural fresh colors.

Newly designed Dynamic Sound Expansion system to reproduce a wider and more dynamic sound field with any video source including TV programs

- Dynamic theater sound effects for movies and sports programs, natural sound localization for music programs, and a monaural sound modified to produce stereo-like sound. Simulated stereo sound is included in the dynamic sound expansion system.

INSTALLATION

ANTENNA CONNECTION

Connect to an outdoor antenna or a cable box or centralized antenna terminal. (See page 12 for details.)

MOUNTING

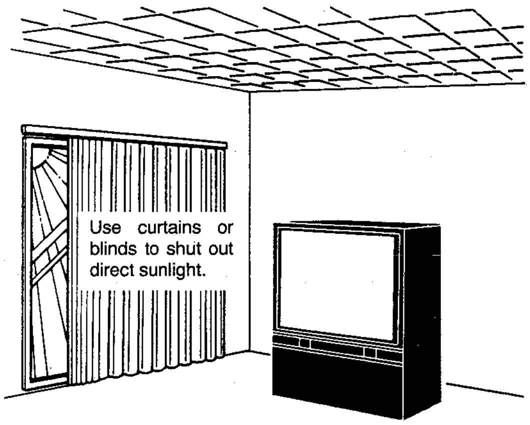
The Projection Monitor is designed to be placed on the floor or on a sturdy platform. The mounting surface should be flat and steady.

INSTALLATION PRECAUTIONS:

Place of Installation

- *When the Projection Monitor is operating, it is cooled by air-flow through ventilation holes in the rear and bottom. Therefore, avoid placing it in a location where the cooling air-flow is hindered (for example, against a wall).*
- *Avoid places subject to extremely high temperatures or humidity, or to temperatures of 41 °F (5 °C) or lower. Also avoid dusty places.*
- *Do not set the Projection Monitor in an unstable location (such as on a shaky or tilted platform).*
- *When setting the Projection Monitor on a floor made of soft material, make sure that the floor is not damaged by the weight of the Projection Monitor.*
- *If the room temperature suddenly rises (or if the Projection Monitor is moved from a cool place to a hot place), dew condensation may occur on the lenses, resulting in picture distortion or color fading. In such a case, simply wait a while (with the POWER SWITCH on) and the dew will disappear.*

Downward spot lights or fluorescent lights in an overhead "Honeycomb" prevent direct illumination of the screen.


Use curtains or blinds to shut out direct sunlight.

Cover shiny surfaces (floor and walls) with non-reflective materials, (carpet, rugs, wallpaper, etc.).

OPERATING PRECAUTIONS

Keep away from magnetic fields

The picture may be distorted if strong magnetic fields are nearby. External speakers should be set at least two feet (60 cm) away from the Projection Monitor. Electric fans and other motor driven appliances and toys may also be sources of magnetism.

When moving the monitor

Pull out the plug and move the set carefully. Be particularly careful not to bump or scratch the screen. To avoid damage to the caster wheels you may need to lift the set when going over irregular surfaces.

Install in a flat, steady place

Do not put the Projection Monitor on a surface that is tilted, unsteady or prone to shake or vibrate. A shaky or slanted platform is dangerous.

Adjust room illumination

Excessively bright or dim lighting may strain your eyes. Draw the curtains if necessary to shut out direct sunlight.

When not using the set for a long time

For safety, unplug the power cord when leaving the set turned off for a long period of time.

Dew (condensation) and picture blurring

- You may see a blurred picture if the set is moved from a cool to a warm location or if room temperature rises very rapidly. This occurs when moisture from the air condenses on the optical parts.
- The picture will return to normal if you leave the set turned on for an hour or two.
- A gradual change in temperature can prevent dew formation.

A word about still pictures

- Do not project a still picture on your Monitor for a long period of time.
  (For example: when using your Monitor for video games, monitoring your personal computer, or while playing back videodiscs.) This can adversely affect your CRT. If this cannot be avoided, reduce the contrast of the picture in order to minimize any damage which might occur.

INSERTING BATTERIES IN THE REMOTE CONTROL UNIT

You will find the remote control unit packed inside the projection monitor box. Open the remote control unit and insert the batteries. Follow the procedure below:

1. Open the battery compartment on the rear of the remote control unit. Press down with your thumb while sliding the lid outward.
2. Note the polarity (+ and –) markings in the case. Insert the supplied batteries so that they match the markings.
3. Close the lid by sliding it back in until it clicks into place and press the RESET button with the tip of a ball point pen. The remote control unit is now ready to use.

Battery Replacement

If the TRANSMIT/LEARN indicator does not light when you press a key, try pressing the RESET button and re-attempting your command. If the indicator still doesn't light, the batteries are low and should be replaced as soon as possible.

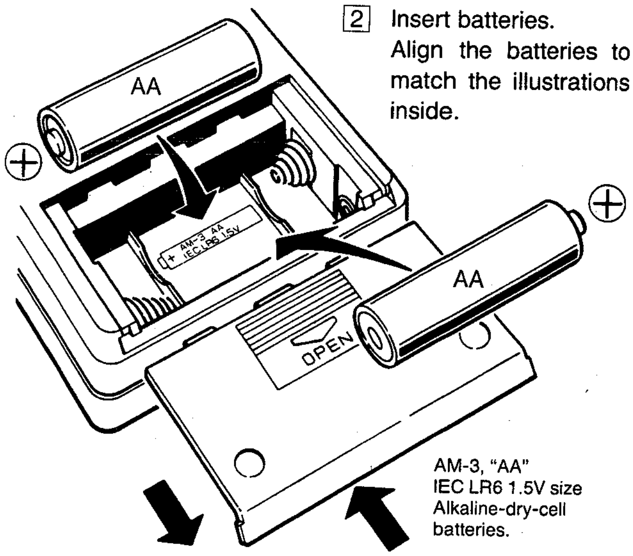
Be sure to press the RESET button after the batteries are replaced and the battery compartment cover is closed. (Even when the RESET button is pressed, the programmed signals will not be erased.)

NOTE:

- *The unit power switch is connected to the battery compartment cover. The unit will not operate without the cover even if the batteries are loaded, and memory will only be retained for approximately 15 minutes (even if the batteries are loaded).*

  Never close the cover when the batteries are not loaded. The programmed commands will be lost within a few seconds if you do so.

INSERTING BATTERIES



2. Insert batteries. Align the batteries to match the illustrations inside.

1. Open by pressing with your thumb while sliding outward.

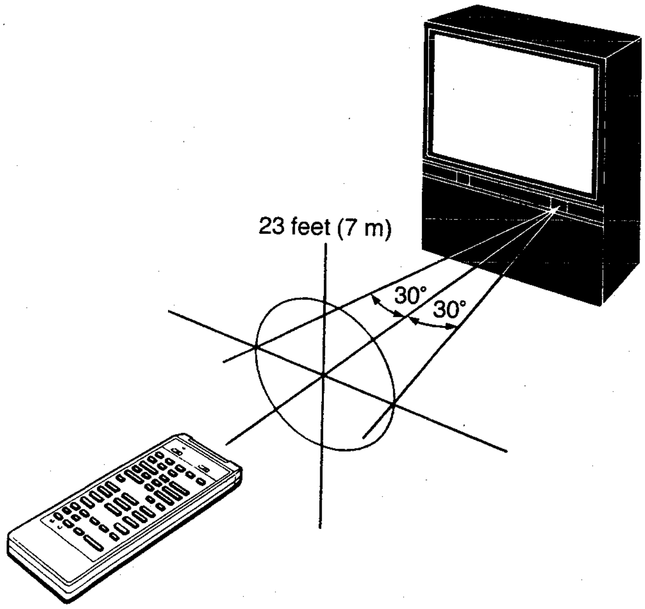
3. Close the lid by sliding back into place.

REMOTE CONTROL OPERATION RANGE

- Point the remote control unit toward the front of the Projection Monitor when you press any of the control keys.
- The remote control unit should be effective at distances of up to about 23 feet (7 meters) from the Projection Monitor and at angles of up to about 30 degrees from a line perpendicular to the front panel.
- Furniture and other obstacles may block the infrared light beam so that it cannot reach the sensor on the Projection Monitor's front panel.
- If there is no response even when the remote control is used directly in front of the Projection Monitor, the dry cell batteries may need replacement.
- Performance of the remote control unit is adversely affected in the presence of strong fluorescent light. Keep such lights away from the sensor window in particular.

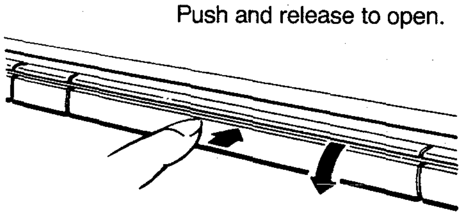
NOTE:

These figures are general and do not necessarily apply to programmed commands.



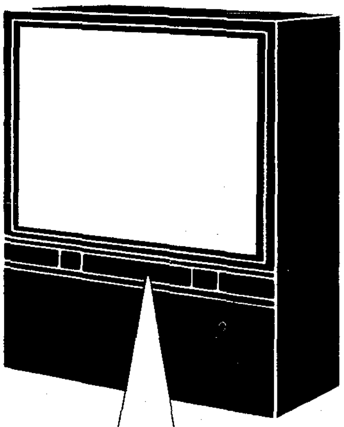
FRONT PANEL FACILITIES

A flip-down door conceals the control panel. Push gently and release to open the door.
To close the door, lift it back up into place.


Push and release to open.

NOTE:

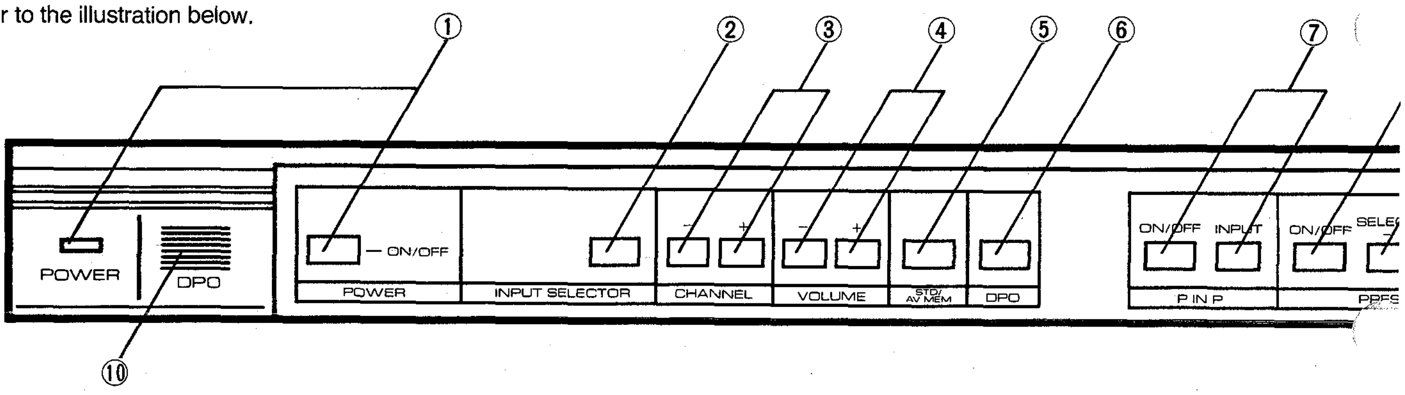
- *If you accidentally pull the door open, it may not shut properly. Push in when shutting the door to restore it to normal operation.*



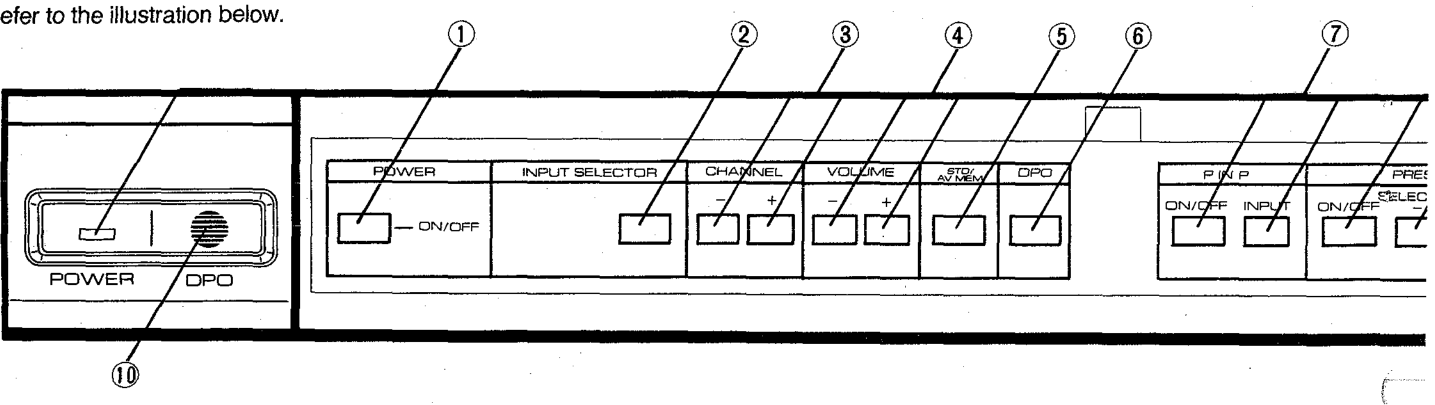
Control Panel

★ Use the remote control unit to operate most functions. See pages 14 to 23.

Owner of the SD-P4543
Refer to the illustration below.


①
②
③
④
⑤
⑥
⑦
POWER
DPO
ON/OFF
POWER
INPUT SELECTOR
−
+
CHANNEL
−
+
VOLUME
STO/
AV MEM
DPO
ON/OFF
INPUT
P IN P
ON/OFF
⑩

Owner of the SD-P4043
Refer to the illustration below.


①
②
③
④
⑤
⑥
⑦
POWER
DPO
POWER
ON/OFF
INPUT SELECTOR
CHANNEL
−
+
VOLUME
−
+
STO/
AV MEM
DPO
P IN P
ON/OFF
INPUT
ON/OFF
⑩

FRONT PANEL FACILITIES

① POWER SWITCH AND INDICATOR

Press once to turn on the power. Press again to turn the power off. The POWER indicator illuminates when the power is on. This unit is equipped with an Auto OFF circuit. 30 minutes after the input signal ceases to be supplied (for example, the TV channel being received stops broadcasting), the power automatically turns off.

② INPUT SELECTOR BUTTON

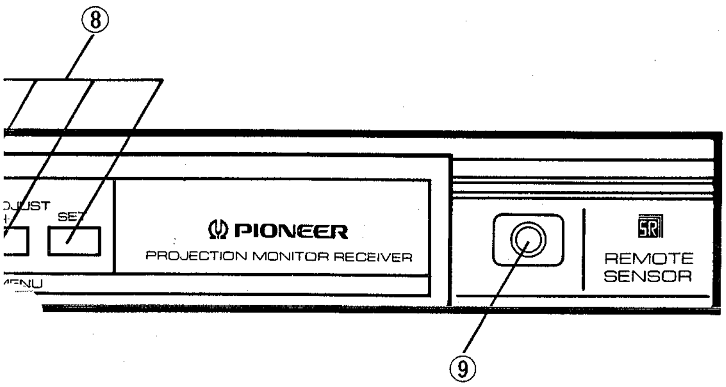
Press to select your program source: TV, VDP (LD Player) or VIDEO. Each press of the button changes the selection to the next source.

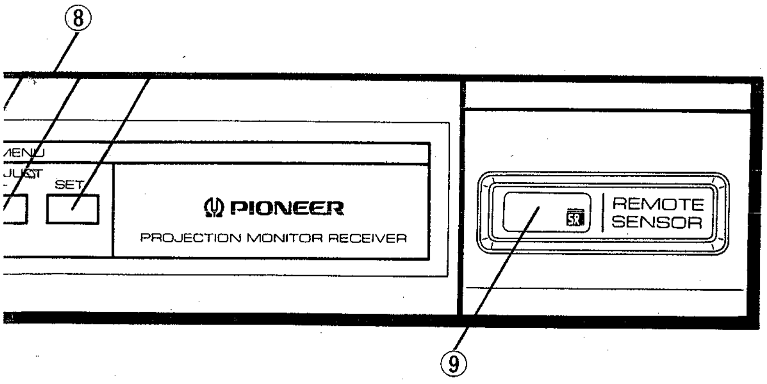
③ CHANNEL BUTTONS

Press plus (+) or minus (–) to tune to a higher or lower channel. Only those channels in tuner preset can be tuned in by this method. For details, see pages 27 and 29.

④ VOLUME BUTTONS

Press the plus (+) or minus (–) button to raise or lower the volume.





⑤ STD/AV MEM (Standard/AV Memory) BUTTON

Press to switch between the standard (STD) picture/sound settings and the AV MEMORY 1 and AV MEMORY 2 settings which have been input with the MENU SET button.

⑥ DPO (Dynamic Picture Optimizer) BUTTON

You can turn DPO on or off as desired. When DPO is on, it automatically adjusts the picture to compensate for room illumination. For details, see page 35.

NOTE:

- *When the DPO button is pressed and held for more than 2 seconds, the linear white system will be turned off and "LINEAR WHITE OFF" will appear on the screen. The linear white system will resume operation approx. 4 seconds after the DPO button is released.*

⑦ P IN P (Picture-in-Picture) BUTTONS

ON/OFF: Press to turn the Picture-in-Picture function on and off.

INPUT: Press to select the sub screen program in Picture-in-Picture mode.

- For details on the Picture-in-Picture function, refer to the remote control unit's operating instructions.

NOTES:

- *If only* S-VIDEO *VDP and VIDEO jacks of the LD player and VCR are connected to the Projection Monitor, the Picture-in-Picture function will not operate when these buttons are pressed.*
- *When the P IN P button is pressed and held for more than 2 seconds. The Projection Monitor will go into its demonstration mode. "P IN P DEMONSTRATION" will appear on the screen while Picture-in-Picture demonstration mode is engaged.*
- *The Picture-in-Picture demonstration mode will be cancelled if any other operation key or operation button is pressed; and the Projection Monitor will enter the selected operation mode.*

⑧ PRESET MENU BUTTONS

These buttons are used to perform the following functions: color convergence, tuner presetting, TV-CATV selection, relabeling input displays and AV memory storage. For details, refer to the description of each function.

ON/OFF: Press to turn the Menu (functions above) on and off. When the button is pressed on, the function names CONVERGENCE, AV MEMORY, DPO BASE, INPUT LABEL, TV-CATV MODE and TUNER PRESET are displayed on the screen.

SELECT/ADJUST (+/–): Press to select the desired function. The selected function is displayed in red.

SET: Press to memorize the setting.

⑨ REMOTE CONTROL SENSOR

This sensor picks up infrared signals from the remote control unit.

⑩ DPO SENSOR

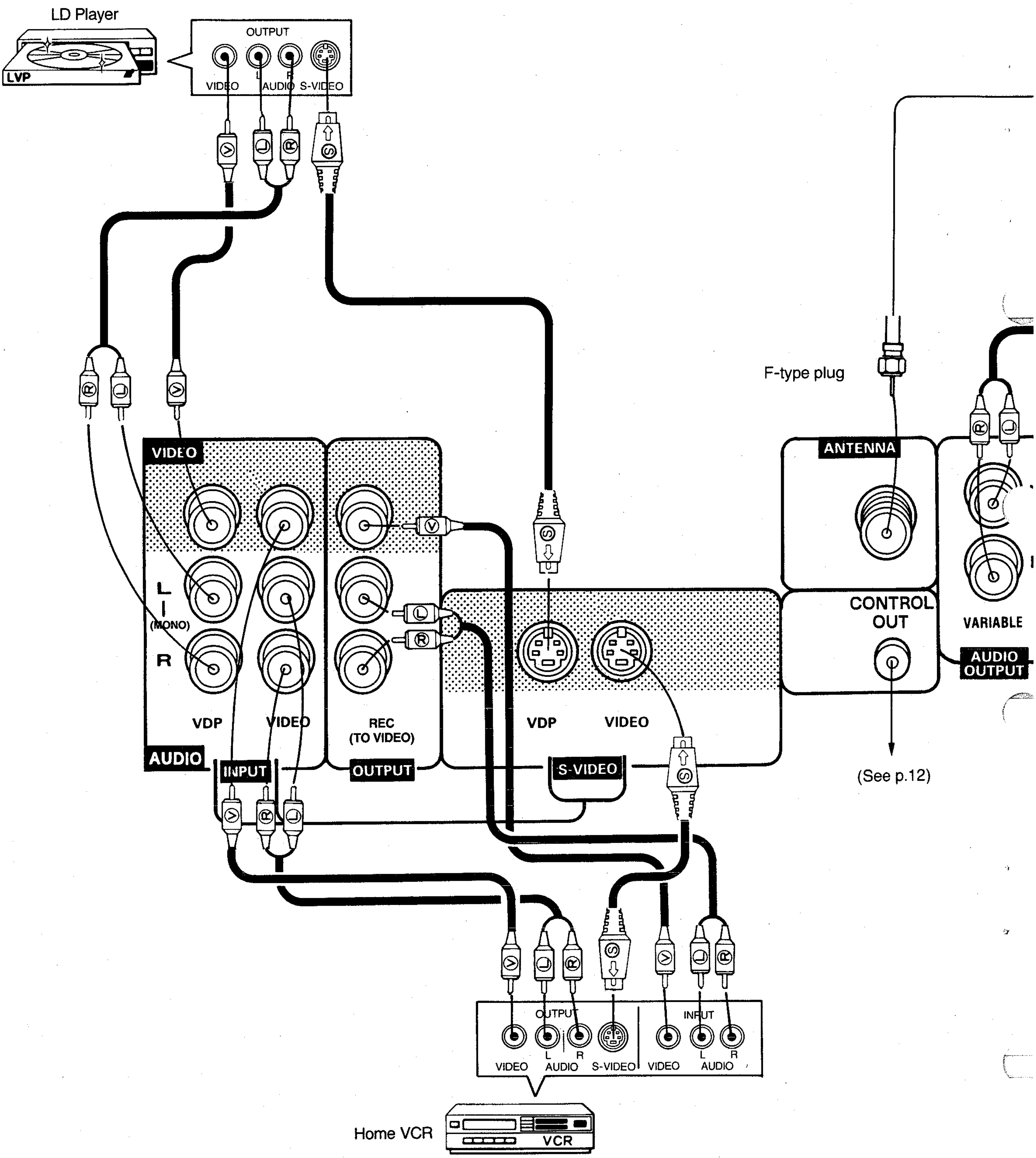
This detects ambient lighting for the DPO (Dynamic Picture Optimizer) circuit which optimizes the TV picture accordingly.

NOTE:

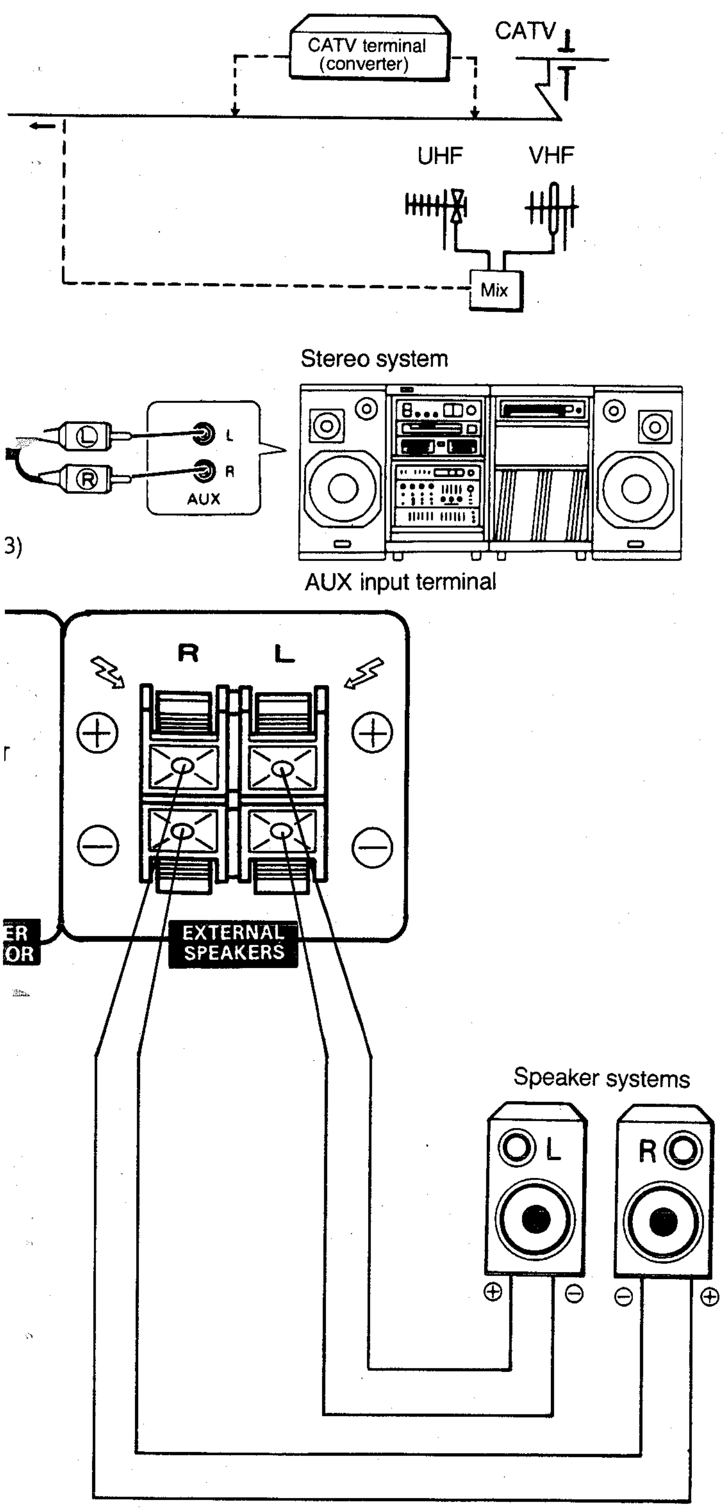
- *On rare occasions, an electrical discharge may occur inside the CRT. It makes a short, sharp pop and results in a 1 or 2 second power failure. The power will return automatically. You need not worry about the discharge for it is not a defect. It will disappear with regular use. The Picture-in-Picture function will be cancelled automatically if a power failure is occurs when this function is engaged.*

SYSTEM CONNECTION DIAGRAM

Refer to the instructions for your VCR, LD Player and other components for details concerning connections.


LD Player
LVP
OUTPUT
VIDEO
L
R
AUDIO
S-VIDEO
F-type plug
VIDEO
L
(MONO)
R
VDP
VIDEO
AUDIO
INPUT
REC
(TO VIDEO)
OUTPUT
VDP
VIDEO
S-VIDEO
ANTENNA
CONTROL
OUT
VARIABLE
AUDIO
OUTPUT
(See p.12)
OUTPUT
INPUT
VIDEO
AUDIO
S-VIDEO
VIDEO
AUDIO
Home VCR
VCR

SYSTEM CONNECTION DIAGRAM



INPUT JACKS

These are two sets of inputs for VCRs, LD Players, and other video sources. Use RCA-type pin plug cords (the same as those used in hi-fi systems) for connections.

When the audio source to be connected is monaural, connect the source to the L-(MONO) jack.

S-VIDEO INPUT JACKS

Use the S-VIDEO VIDEO jack for input of S-VHS or ED Beta VCR video signals.

Use the S-VIDEO VDP jack for inputting signals from an LD Player which has an S-output jack.

When making S-VIDEO connections for either a VCR or an LD Player, be sure to also keep the standard VIDEO and AUDIO connections between the VCR/LD Player and the Projection Monitor.

NOTE:

- *If only using the S-VIDEO VDP and VIDEO jacks are used to connect the LD player and VCR to the Projection Monitor, the Picture-in-Picture function cannot be used. Use both the INPUT and S-VIDEO jacks for connecting an LD player and VCR is recommended for the Picture-in-Picture function.*

OUTPUT REC-JACKS

These are used for connecting the monitor to a VCR for recording, or for linking it to another monitor. These jacks output the video and audio signals of the source currently selected by the INPUT SELECTOR.

Connect these output jacks to your VCR's inputs. Connect the VCR's outputs to the monitor's VIDEO inputs.

CONTROL OUT JACK

This jack is used to extend remote control to other PIONEER equipment bearing the SR (System Remote) mark.

Use mono miniplug cords (available at audio and video shops) to connect the monitor's CONTROL OUT jack to the CONTROL IN jack of the other unit. The other unit can be connected to still another in the same manner, from the CONTROL OUT jack of one to the CONTROL IN jack of the other. If a unit has only a CONTROL IN jack then put that unit last in the sequence. Otherwise, you may connect in any order that is convenient.

If another unit has the SR mark and its own remote control sensor, then the CONTROL OUT/IN jack connection is not required. However, this connection may improve the response of remote control, since you will not need to point the remote control unit at different components. (See page 12.)

AUDIO OUTPUT (VARIABLE) JACKS

These jacks output the audio signal from the video program material currently selected for viewing on the monitor. Connect these audio output jacks to the AUX input jacks of your stereo system. You can then use the remote control unit to adjust the volume.

NOTE:

- *Signals from these output jacks will be affected by AV memory, bass and treble tone adjustments using the STD/AV MEM key, SOUND key, ADJUST ◀ and ▶ key, as well as the dynamic sound expansion function using the D-SOUND EXPANSION key.*

SPEAKER SELECTOR SWITCH

This lets you select either the built-in speakers or external speakers. (See page 13.)

NOTE:

- *Set to INT when using the built-in speakers. Do not use the INT setting if using speakers connected to the EXTERNAL SPEAKERS terminals on the rear panel. At the INT setting, no sound is output from the external speakers.*
- *Set to EXT when using external speakers (or if you will be directing the output through your stereo system). At the EXT setting, no sound is output from the internal speakers.*

EXTERNAL SPEAKERS TERMINALS (R, L)

For connection of external speakers (purchased separately).

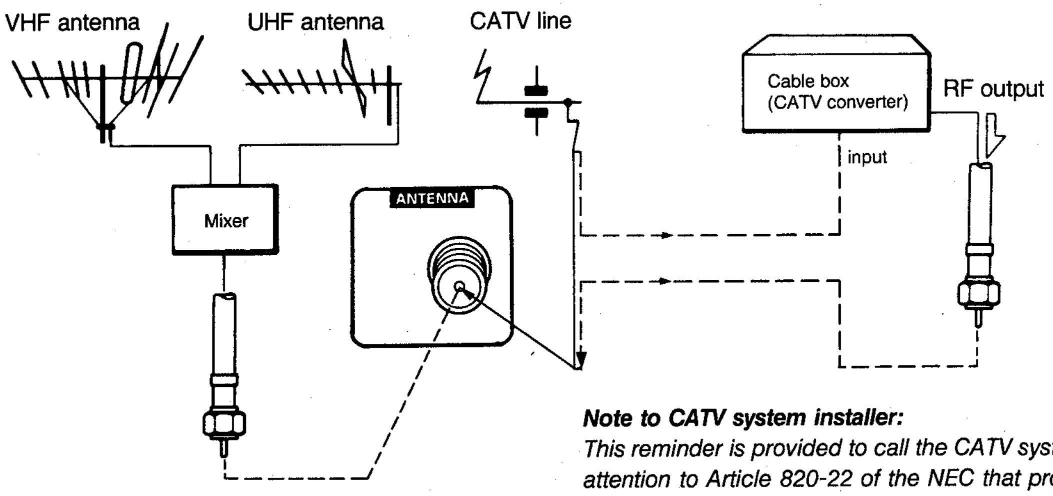
ANTENNA CONNECTIONS

A good color picture depends on a good TV signal. So does good multi-channel (stereo and SAP) sound. To assure the highest signal quality, choose an antenna that suits your reception area and have it properly installed. Ask your dealer for advice.
Of course, if you will be subscribing to cable or have a central antenna for your building, then you will not need an external antenna.
However, proper connections from the TV signal source to your monitor are essential. Please refer to the instructions below.

USING THE ANTENNA CABLE CONNECTOR

The cable connector plugs into the monitor's antenna terminal. This unit is designed to be connected to a 75 ohm coaxial cable using an F-type plug.

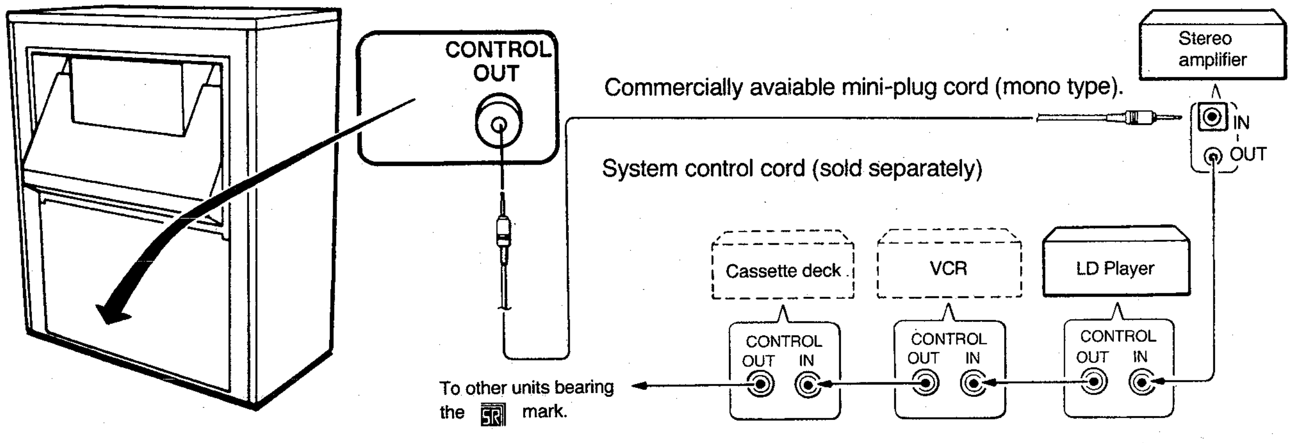
Connect the cable box output or the antenna cable connector to the ANTENNA terminal.


VHF antenna
UHF antenna
CATV line
Cable box
(CATV converter)
RF output
input
Mixer
ANTENNA

Note to CATV system installer:
This reminder is provided to call the CATV system installer's attention to Article 820-22 of the NEC that provides guidelines for proper grounding and, in particular, specifies that the cable ground should be connected to the grounding system of the building, as close to the point of cable entry as practical.

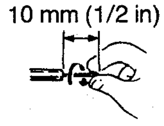
SYSTEM REMOTE CONTROL CONNECTIONS

Many PIONEER audio and video components can be connected to provide remote control for an entire audio/video system. Use mini-plug cords (monaural) which may be purchased in most audio and video stores. Connect from the CONTROL OUT jack of one unit to the IN jack of the next unit.

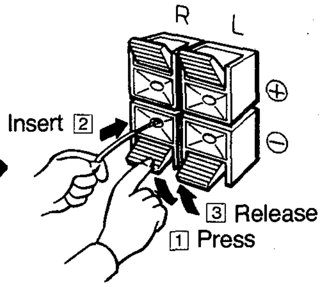

CONTROL OUT
Commercially avaiable mini-plug cord (mono type).
Stereo amplifier
IN
OUT
System control cord (sold separately)
Cassette deck
VCR
LD Player
CONTROL
OUT IN
CONTROL
OUT IN
CONTROL
OUT IN
To other units bearing the SR mark.

SPEAKERS

CONNECTING EXTERNAL SPEAKER WIRES



Strip each wire so that about half an inch is exposed. Twist the core.



Turn off the power of the monitor and connected equipment.
Press the lever, insert the wire, and release the lever to lock the wire into place. Pull gently on the wire to check that it is securely connected.

Do this for each wire. Be careful to connect the right speaker's plus and minus terminal wires to the "R" "+" and "—" terminals. Likewise, connect the left speaker's plus and minus terminal wires to the "L" "+" and "—" terminals.

Precautions

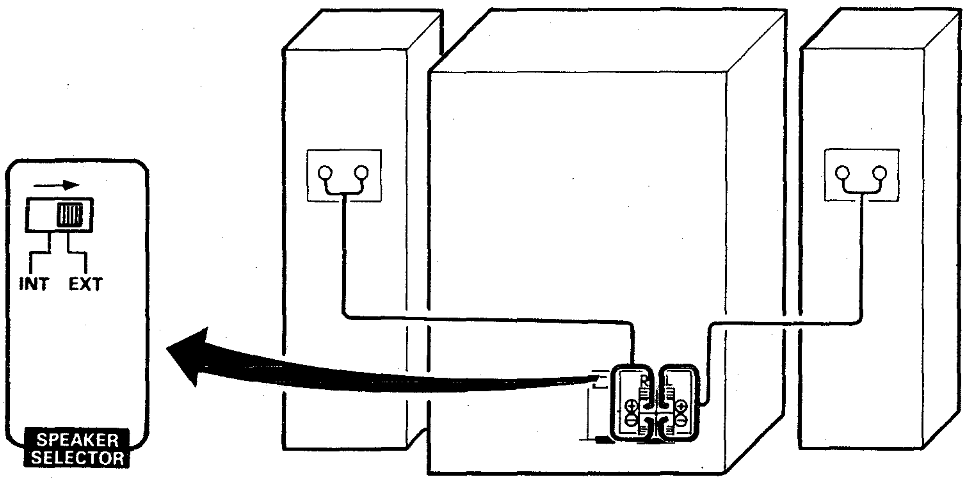
- Be sure that exposed wires do not protrude and touch each other.
- If you do not hear a normal stereo image when listening to a stereo program, it may be because the "+" and "—" connections are reversed for one of the external speakers.
- Make sure that the right speaker is connected to the "R" terminals and the left speaker to the "L" terminals. Make sure that each speaker's two wires are properly connected to the appropriate "+" and "—" terminals.

NOTES:

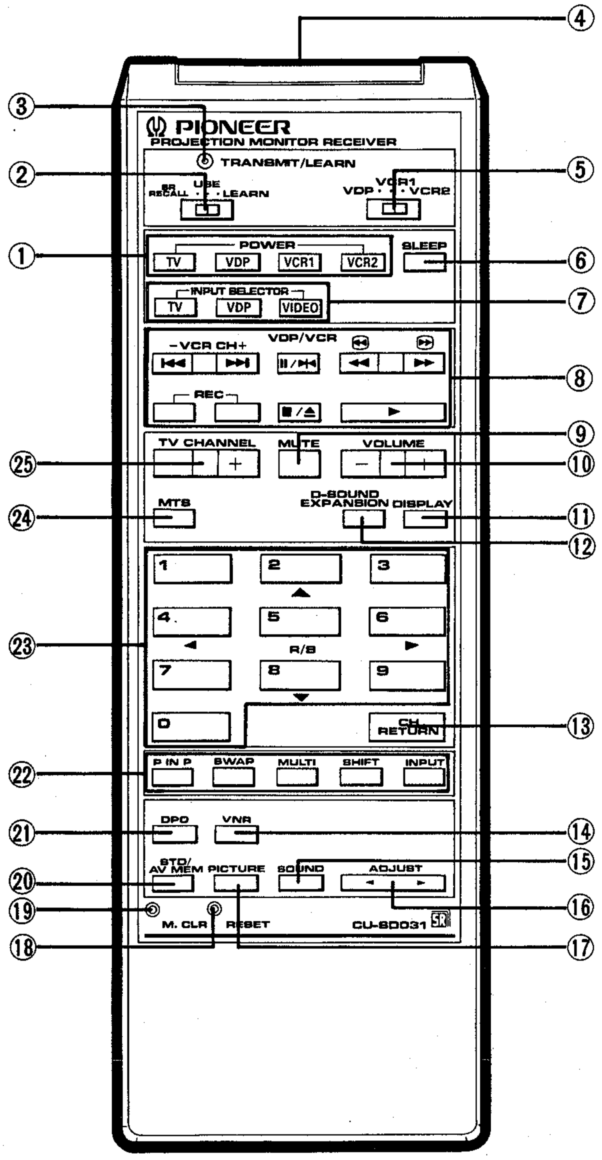
- *Use speakers having an impedance rating of from 8 ohms to 16 ohms.*
- *Ordinary speakers are not magnetically shielded and may disturb the picture if placed too close to the monitor. If you notice a problem, move the speakers about two feet away from the monitor.*

SPEAKER SELECTOR SWITCH

Set this to the INT position if you will be listening to the built-in speakers. If you have connected external speakers (or if you will be listening through your stereo system), then you can turn off the built-in speakers by setting the selector to the EXT position.



REMOTE CONTROL UNIT FACILITIES


①
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㉕
PIONEER
PROJECTION MONITOR RECEIVER
TRANSMIT/LEARN
SR RECALL
USE
LEARN
VDP
VCR1
VCR2
POWER
TV
VDP
VCR1
VCR2
SLEEP
INPUT SELECTOR
TV
VDP
VIDEO
-VCR CH+
VDP/VCR
REC
TV CHANNEL
MUTE
VOLUME
MTS
D-SOUND EXPANSION
DISPLAY
1
2
3
4
5
6
7
8
9
0
R/B
CH RETURN
P IN P
SWAP
MULTI
SHIFT
INPUT
DPC
VNR
STD/AV MEM
PICTURE
SOUND
ADJUST
M. CLR
RESET
CU-SD031

① POWER (TV/VDP/VCR1/VCR2)

Turns the power of the monitor on and off. Also turns the power of LD Players and VCRs bearing the SR mark on and off.

② LEARN MODE Switch

SR RECALL: Set here to command PIONEER equipment marked with the SR mark (No memory function).

USE: In this mode the remote is able to command other components with commands you input through the LEARN function as well as PIONEER SR equipment.

LEARN: This setting activates the capability of the unit to "learn" and store command codes from other remote control units.

③ TRANSMIT/LEARN Indicator

Flashes when commands are being sent in the USE or SR RECALL modes of the LEARN MODE selector. In the LEARN mode, however, it:

- lights when ready to accept programming information, and
- flashes to signal that you have chosen an incorrect key to store a command you wish to program or when the memory is full.

④ Transmitting and Remote Control Code Receiver Window

Transmits remote control signals using infrared rays. When memorizing a remote control code, the window will function as an infrared receiver.

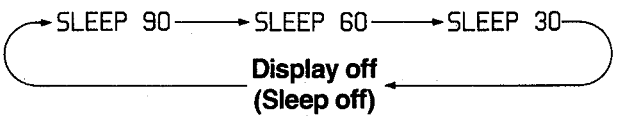
⑤ TRANSMIT MODE Switch

Set to the position that corresponds to the component you wish to operate.

VDP: To control the LD Player.
VCR1: To send commands to VCR 1.
VCR2: To send commands to VCR 2.

⑥ SLEEP

Press to set the sleep timer.
The switching sequence is 90, 60, 30 (in minutes) and OFF (cancel).
The screen will confirm your setting and the projection monitor will shut down when that amount of time has elapsed.
While the timer is working, the auto-off facility will not function.
The POWER OFF display will appear on the screen approximately 1 minute before turning off the power. The POWER OFF display will flash alternately red and black until the power is turned off.


SLEEP 90
SLEEP 60
SLEEP 30
Display off
(Sleep off)

Each time the SLEEP key is pressed, the sleep time decreases in intervals of 30 minutes (90 → 60 → 30 → 0 (Off)). When the SLEEP key is held down, the sleep time decreases in one minute intervals. For example, to set sleep time to 40 minutes: Press the SLEEP key once ('90' is displayed).
Press the SLEEP key again and hold it ('60' is displayed briefly, then the display decreases in one minute intervals; 59, 58, 57, . . . etc.).
Release the SLEEP key when the display reads '40'.

⑦ INPUT SELECTOR (TV/VDP/VIDEO)

Press the key for the source you wish to watch. The screen will display your selection.

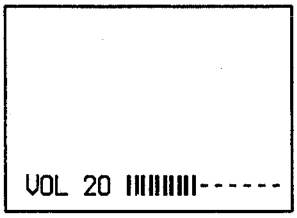
⑧ VDP/VCR Control Keys

If your VDP (LD Player) or VCR (Video Cassette Recorder) is a PIONEER model bearing the SR mark, you can control the components using these keys. For details, see page 23.

REMOTE CONTROL UNIT FACILITIES

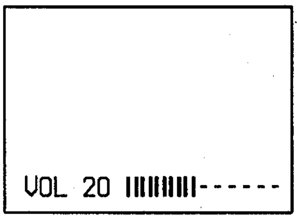
⑨ MUTE

Press to temporarily turn off the sound, and again to return to the previous volume level. This comes in handy, for example, when you get a phone call.
The volume display will turned red while mute is engaged.
If the mute function is left on for over approx. 10 minutes, the function will be cancelled automatically, and the volume level will be reset to 0. The volume display will disappear from the screen when the mute is cancelled.



⑩ VOLUME +, −

Press the + key to increase the volume, and the − key to decrease it. Volume adjustment will appear on the screen as numbers and a bargraph. '63' indicates the maximum volume level.
The display will disappear from the screen after 4 seconds.
* Volume display will change color automatically according to the selected input mode.

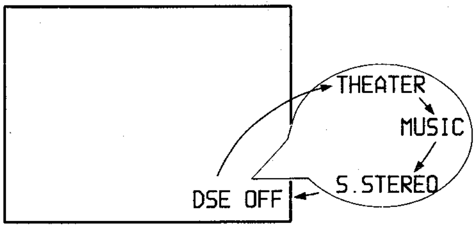


⑪ DISPLAY

Press once to display the current channel and/or other information on the screen.

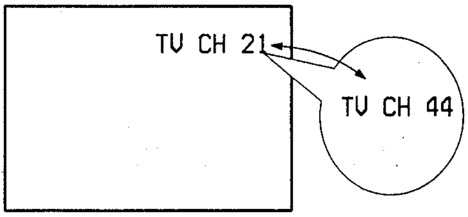
⑫ D-SOUND EXPANSION (Dynamic Sound Expansion)

Press to select the surround mode of sound reproduction. Your choices revolve in a loop sequence as follows:



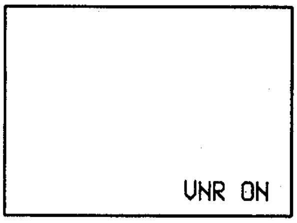
⑬ CH RETURN (Channel return)

Press to switch between the current channel and the channel you were watching immediately before. This is useful, for example, if you wish to switch back and forth between two sporting events.



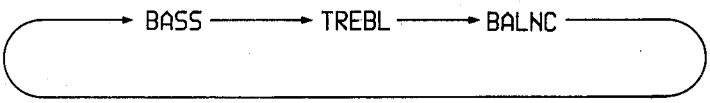
⑭ VNR (Video Noise Reduction)

You can turn VNR on or off as desired. When VNR is on, the noise on the screen is reduced. For details, see page 17.



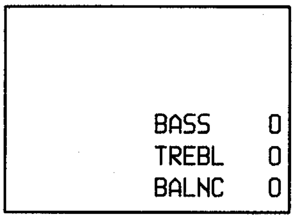
⑮ SOUND

Press to select the sound parameter to be adjusted.



⑯ ADJUST

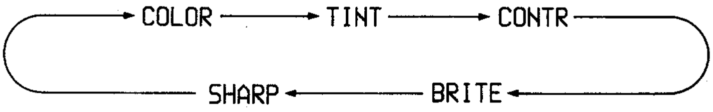
Press the ▶ key to increase the value of the item currently selected using the PICTURE key or SOUND key, and the ◀ key to decrease it.



example: SOUND ADJUST display

⑰ PICTURE

Press to select the picture parameter to be adjusted.



REMOTE CONTROL UNIT FACILITIES

⑱ RESET Button

Press to reset the microcomputer in the remote control unit to its initial mode in the following cases:

- When replacing the batteries.
- If the remote control unit will not function properly when the operation key is pressed, etc.

NOTE:

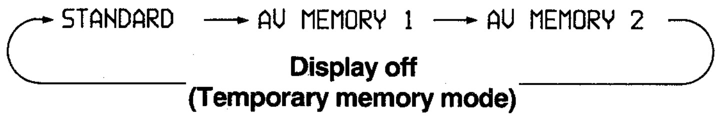
On rare occasions, an electrical discharge may occur inside the unit, causing some command malfunction. In the event of such an occurrence, pressing RESET should correct the problem. The possibility exists, however, that instead of correcting the problem, pressing RESET may erase the programmed memory.

⑲ M.CLR Button

Erases all commands programmed through the LEARN function; press lightly with the tip of a ball-point pen or other fine-tipped instrument to activate when in learn mode.

⑳ STD/AV MEM (Standard/AV Memory)

Press to switch between the standard (STD) picture/sound quality settings and your AV MEMORY 1 and AV MEMORY 2 settings.
This key only recalls settings stored in AV MEMORY. To put the current picture/sound settings into AV MEMORY, use the control panel PRESET MENU buttons. For details, see pages 33 and 34.

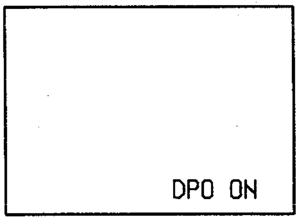


㉑ DPO (Dynamic Picture Optimizer)

You can turn DPO on or off as desired. When DPO is on, it automatically adjusts the picture to compensate for room illumination. For details, see page 35.

NOTE:

- *When the DPO button is pressed and held for more than 2 seconds, the linear white system will be turned off and "LINEAR WHITE OFF" will appear on the screen. The linear white system will resume operation approx. 4 seconds after the DPO button is released.*



㉒ Picture-in-Picture Control Key

Any program source connected to the Projection Monitor can be displayed on the screen simultaneously with any other source. the sub-picture is displayed in reduced size in a corner of the screen. Also the number of sub-pictures can be selected (one or three).

P IN P: Press to turn the Picture-in-Picture function on and off.

SWAP: Press to exchange the position of the screen and sub-picture.

SHIFT: Press to move the sub-picture to a different place on the screen.

INPUT: Press to select the input source for the sub-picture appearing on the screen.

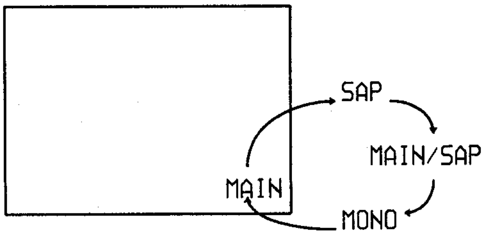
MULTI: Press to select the number of sub-pictures to appear on the screen (one or three).

㉓ Direct Channel Selection/Color Convergence Pad

Press the key (or keys) that correspond to the channel that you wish to watch, to turn directly to that channel from any other channel.
The 2, 4, 5, 6 and 8 keys are also used for color convergence operation. For details, see page 24.

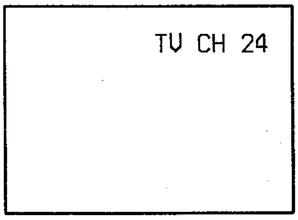
㉔ MTS (Multi-channel TV Sound)

Press to select the reception mode for multi-channel TV sound (MTS). The switching sequence is as follows.



㉕ TV CHANNEL –, +

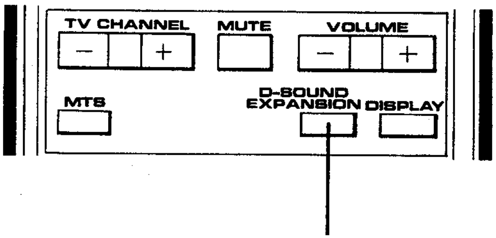
Press the left (–) or right (+) side of this key to scan up or down among the channels in tuner preset.



REMOTE CONTROL UNIT FACILITIES

Dynamic sound expansion effects

This monitor is equipped with the newly designed Dynamic Sound Expansion system to reproduce a wider and more dynamic sound field for any video source including TV programs. A monaural sound can also be modified to produce stereo-like sound. Simulated stereo sound is included in the dynamic-sound expansion system.



D-SOUND EXPANSION key

Press the D-SOUND EXPANSION key repeatedly to select the mode of dynamic sound expansion as follows:

THEATER:	Set to this mode while watching movies or sports programs.
MUSIC:	Set to this mode while watching music programs.
S. STEREO (Simulated Stereo):	Set to this mode while watching monaural sound programs.

When you wish change from monaural sound to a simulated stereo sound with the dynamic-sound expansion system:

Press the D-SOUND EXPANSION key repeatedly until S. STEREO is displayed on the screen.

* After operation is finished, it is recommended to turn the dynamic-sound expansion system off or set the monitor to THEATER or MUSIC.

NOTE:

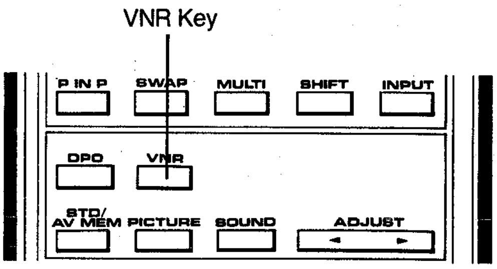
- *The selected mode will appear on the screen for 4 seconds.*
- *The dynamic-sound expansion system effect is performed by both the internal speakers and external speakers which are connected to the EXT SPEAKERS terminals.*
- *Only the signals from the AUDIO OUTPUT (VARIABLE) jacks will be altered when the dynamic-sound expansion system is engaged.*
  The original output signal is sent through the other OUTPUT jacks.

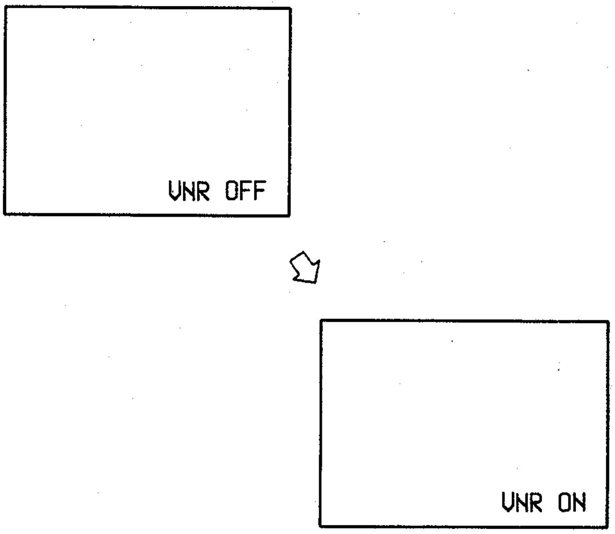
VNR (Video Noise Reduction) system operation

To improve picture quality with VNR while watching a TV program or prerecorded video cassette tape playback

VNR system will reduce noise contained in the video signal and improve the picture quality of TV programs or video tape playback pictures.

Press the button once to display the VNR mode (VNR ON or VNR OFF) on the screen, then press the button once or twice to select either VNR ON or VNR OFF.





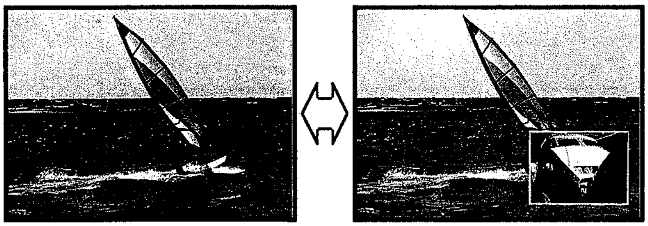
REMOTE CONTROL UNIT FACILITIES

Picture-in-Picture functions

Any one of the three sources connected to the Projection Monitor can be displayed simultaneously on a small area of the screen, while one of the other sources is being watched on the main screen.

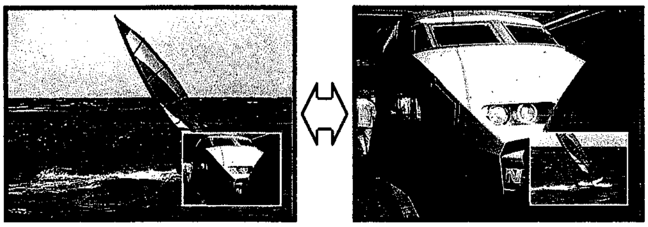
To turn the Picture-in-Picture function on and off

Press the P IN P key repeatedly to turn the sub-picture on and off. To select the input source, press the TV, VDP or VIDEO INPUT SELECTOR key you wish to watch while the sub-picture is displayed on the screen.



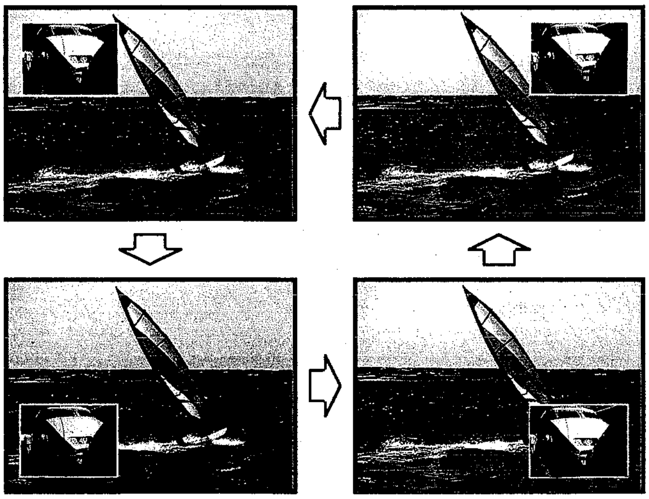
To replace the main screen picture with the sub-picture

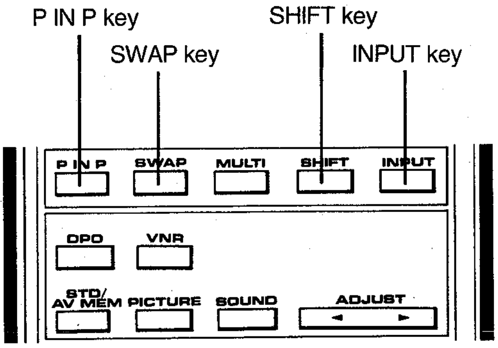
Press the SWAP key. Each time this key is pressed, the main screen and the sub-picture will switch positions.



To change the position of the sub-picture

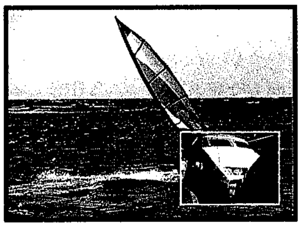
Press the SHIFT key repeatedly. Each time this key is pressed, the sub-picture will move (counterclockwise) to a different corner of the main screen.





To select the input source of the sub-picture while watching the main screen

Press the TV, VDP or VIDEO INPUT SELECTOR key. When the INPUT key is pressed, the selected video source for the sub-picture will displayed, ie. video disc playback, TV program or video casette tape playback.



Attention

Do not use the Picture-in-Picture function more than 2 hours. It may damage to the picture tubes inside of the Projection Monitor.

If you wish to use this function more than 2 hours, change the sub-picture position on the screen every once in a while minutes by pressing the SHIFT key.

NOTES:

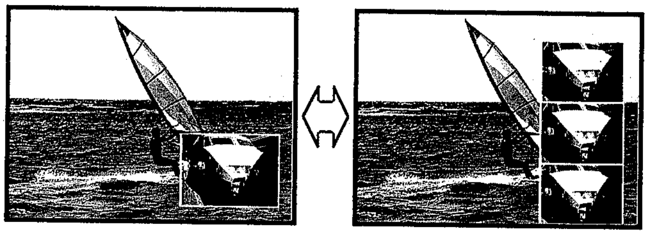
- *If only the* S-VIDEO *VDP and VIDEO jacks are used to connect the LD player and VCR to the Projection Monitor, the Picture-in-Picture operate will not performed when these buttons and keys are pressed.*
- *The sound of the sub-pictures cannot be heard when the Picture-in-Picture system is engaged.*
- *The main screen will disappear if a TV program is selected by pressing the input selector key while watching a TV program on the main screen.*
- *The sub-picture's sound will be heard while watching a TV program on the sub-picture.*
- *When a copy-protected tape is played back in the main picture, the sub-picture may be distorted.*
- *With the some VCRs, when the VCR is not in playback mode, the screen may fluctuate. This is not a malfunction.*
- *TV channels can be selected with the TV CHANNEL +/− key or 10 key pad when the TV key of the INPUT SELECTOR is pressed. Both the main screen and the sub-picture will change TV channels at the same time when TV channels are selected.*
- *Signals ouptut from the Projection Monitor will not be altered when the Picture-in-Picture is engaged.*
  Only the original output signal is sent through the monitor output jacks.

Picture-in-Picture function using the Multi-picture feature

The Projection Monitor can display and switch the positions of multiple sub-pictures as well.

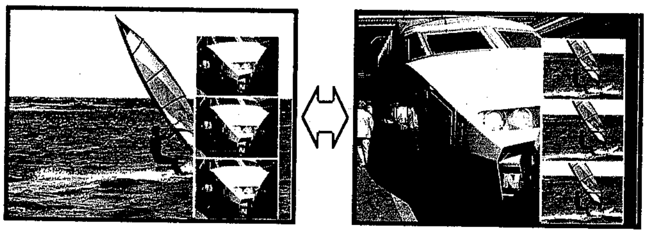
To choose between one and three sub-pictures while the Picture-in-Picture function is engaged

Press the MULTI key repeatedly. Each time this key is pressed, the number of sub-pictures on the screen will alternate between one and three.



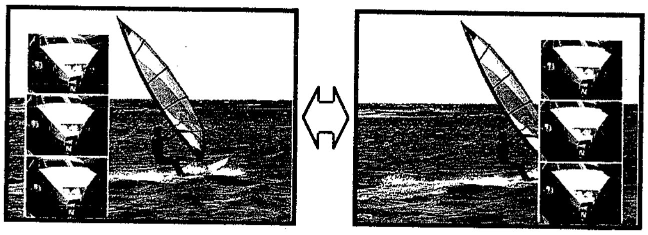
To replace the main screen with the lower sub picture

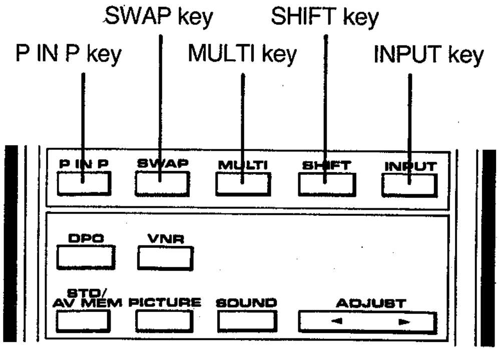
Press the SWAP key. Each time this key is pressed, the main screen and the lower sub-picture will switch positions.



To change the position of all three sub-pictures at the same time

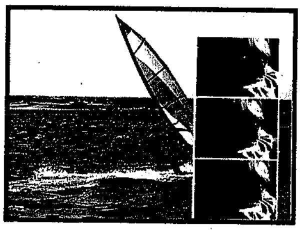
Press the SHIFT key repeatedly. Each time this key is pressed, the three sub-pictures will move to the left or right side of the main screen.





To select the input source of the sub-pictures while watching the main screen

Press the TV, VDP or VIDEO INPUT SELECTOR key. When the INPUT key is pressed, the selected video source for the sub-picture will be displayed, ie. video disc playback, TV program or video casette tape playback.



Attention

Do not use the Picture-in-Picture function more than 2 hours. It may damage to the picture tubes inside of the Projection Monitor.

If you wish to use this function more than 2 hours, change the sub-picture position on the screen every once in a while minutes by pressing the SHIFT key.

NOTES:

- *If only the* S-VIDEO *VDP and VIDEO jacks are used to connect the LD player and VCR to the Projection Monitor, the Picture-in-Picture operate will not performed when these buttons and keys are pressed.*
- *The main screen will disappear if the MULTI key is pressed while watching a TV program.*
- *TV channels can be selected with the TV CHANNEL +/– key or 10 key pad when TV is chosen as the INPUT SELECTOR mode for the sub-pictures.*
- *The sound of the sub-pictures cannot be heard when the Picture-in-Picture system is engaged.*
- *When a copy-protected tape is played back in the main screen, the sub-picture may be distorted.*
- *With the some VCRs, when the VCR is not in playback, the screen may fluctuate. This is not a malfunction.*
- *Signals output from the Projection Monitor will not be altered when the Picture-in-Picture is engaged.*
  Only the original output signal is sent through the monitor output jacks.

REMOTE CONTROL UNIT FACILITIES

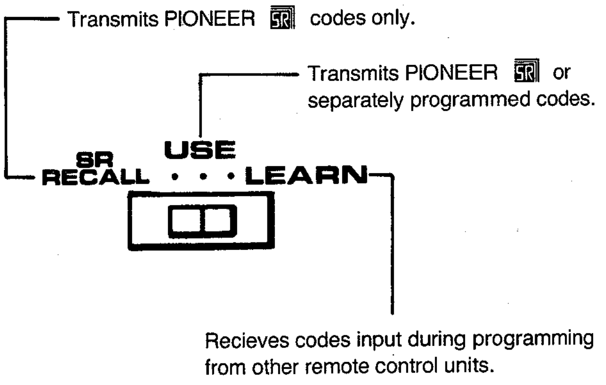
Programmable remote control functions

This remote control unit can "learn" the commands of other ones, regardless of their manufacturer, as long as the other unit is of the infrared type. In some cases you may still need the original remote control unit, but you will be able to use this unit for most of your video as well as audio system control needs.

NOTE:

It is advisable to program the unit in a room separate from the system with which it is to be used. This will prevent problems such as sudden high-volume output or accidental tape erasure that may occur if command signals reach your components during programming. Or, you may wish to unplug your component system and conduct programming in the same room. Simply turning off the power may not be sufficient since power on/off switching may also be remote controllable. Also do not throw away the original remote control units after programming. You might need the original ones in the future.

This remote control unit contains preprogrammed commands compatible with PIONEER equipment. If your home audio/video center consists exclusively of PIONEER components, you can use the unit without any additional programming. It is also possible to return to the original PIONEER commands after assigning other commands. (Refer to "Returning to the Initial Settings" for details.)


SR RECALL
USE
LEARN

Transmits PIONEER SR codes only.

Transmits PIONEER SR or separately programmed codes.

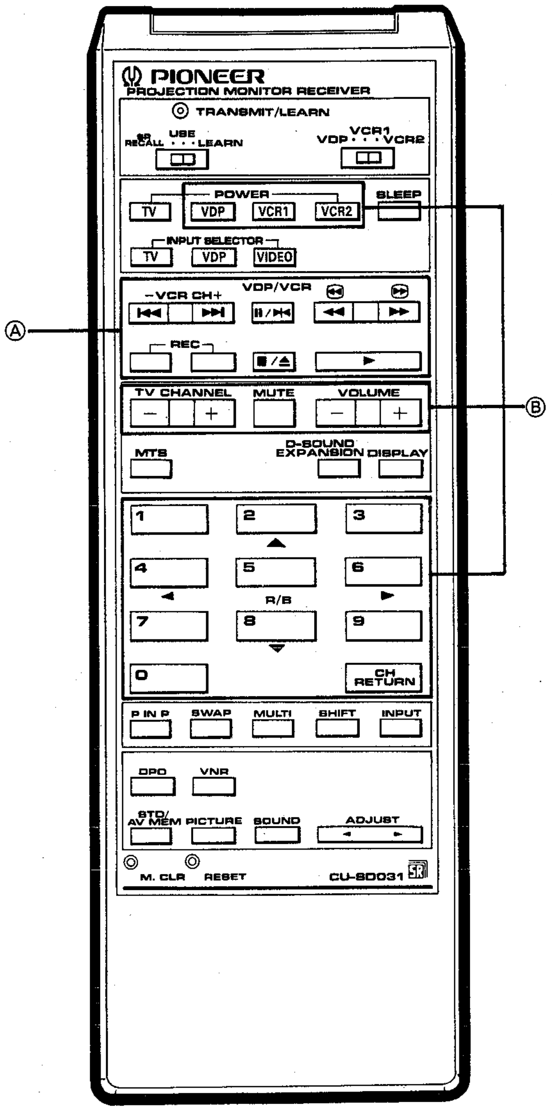
Recieves codes input during programming from other remote control units.

Which keys can be programmed with new commands?

Setting the LEARN MODE switch to the LEARN position allows the unit to memorize codes. Once programmed, these new commands can be transmitted only when the LEARN MODE switch is in the USE position. The SR RECALL setting will only allow transmission of the initialized PIONEER SR codes.

For VDP/VCR controls in area Ⓐ, the keys can be programmed with a different command from another remote for each TRANSMIT MODE. In other words, each key can have up to three different functions, differentiated by the setting of the TRANSMIT MODE.

For POWER and other TV controls in area Ⓑ each key can be programmed with only a single command, regardless of the TRANSMIT MODE setting.


Ⓐ
Ⓑ
PIONEER
PROJECTION MONITOR RECEIVER
TRANSMIT/LEARN
SR RECALL · · · USE · · · LEARN
VDP · · · VCR1 · · · VCR2
POWER
TV
VDP
VCR1
VCR2
SLEEP
INPUT SELECTOR
TV
VDP
VIDEO
−VCR CH+
VDP/VCR
REC
TV CHANNEL
MUTE
VOLUME
MTS
D-SOUND EXPANSION
DISPLAY
1
2
3
4
5
6
7
8
9
0
R/B
CH RETURN
P IN P
SWAP
MULTI
SHIFT
INPUT
DPO
VNR
STD/AV MEM
PICTURE
SOUND
ADJUST
M. CLR
RESET
CU-SD031 SR

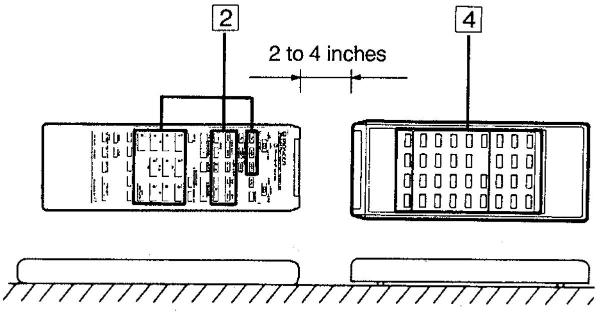
Other Important Notes

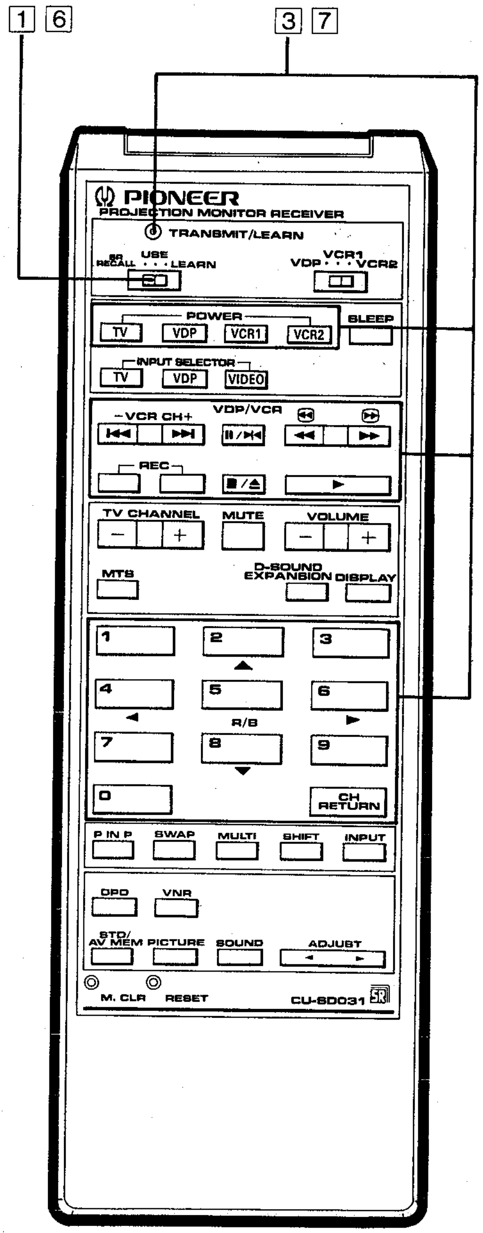
- A total of 43 other codes can be memorized using these keys. (This may vary depending on the command format of the codes to be memorized.)
- There are 2 keys on the unit for recording, to help prevent misoperation. To start recording, or to memorize a command code with the REC keys, both of them must be pressed at the same time.
- When the batteries run down, all functions will stop automatically. If the indicators no longer light or flash, or components do not respond to signals from the unit, the batteries need to be replaced. (Always use alkaline cells.)
- When programming keys, make sure that both units are loaded with fresh batteries.
- Programming may be impossible from some types of infrared remote control units.

REMOTE CONTROL UNIT FACILITIES

How to preset the remote control buttons

1. **Set the LEARN MODE switch to LEARN.**
2. **Place the other remote control unit and the programmable remote control unit on a table facing each other, separated by a distance of 2 to 4 inches (5 to 10 cm).** Programming will not be possible if the units are too close to each other.
3. **Press the key on the programmable remote control unit that you wish to program until the TRANSMIT/LEARN indicator lights up.**
4. **Press a key on the other remote control unit until the TRANSMIT/LEARN indicator goes off.**
5. **To preset other keys, repeat steps 2 to 4.**
6. **When finished, set the LEARN MODE switch back to the USE position.**
7. **Point the programmable remote control unit toward the corresponding component and check operation by pressing the keys you just finished presetting.** If the component does not work as expected, repeat steps 1 to 7. Try changing the distance between the remote control units in step 2.


2
4
2 to 4 inches


1 6
3 7
PIONEER
PROJECTION MONITOR RECEIVER
TRANSMIT/LEARN
USE
RECALL
LEARN
VCR1
VDP
VCR2
POWER
TV
VDP
VCR1
VCR2
SLEEP
INPUT SELECTOR
TV
VDP
VIDEO
-VCR CH+
VDP/VCR
REC
TV CHANNEL
MUTE
VOLUME
MTS
D-SOUND EXPANSION
DISPLAY
1
2
3
4
5
6
R/B
7
8
9
0
CH RETURN
P IN P
SWAP
MULTI
SHIFT
INPUT
DPD
VNR
STD/ AV MEM
PICTURE
SOUND
ADJUST
M. CLR
RESET
CU-SD031

NOTES:

- *When programming, make sure that function indicators (e.g., ►, ►►, ■) are programmed from the original remote control unit into the matching keys of the programmable unit; this will greatly facilitate operation.*
- *Do not press the keys excessively while performing presetting operations.*
- *The TRANSMIT MODE switch will shut off automatically while performing presetting operations.*
- *If the LEARN indicator flashes, it indicates either that you are trying to store a command with a key incapable of being used in the LEARN function or that the remote control unit's programming capacity has been exceeded. In the latter case, the function last programmed will not be stored correctly. All previously programmed functions, however, will be retained in the memory and may be used as they are if the last function is not essential.*

  For re-programming information, refer to "Returning to the Initial Settings."

1. If programming is not carried out successfully:

- *Position the remote control units at a greater distance from each other.*
- *Position the remote control units slightly out of line with each other.*

2. If the remote control unit is directly subjected to strong fluorescent light, programming may not be possible.

3. If remote control operation is not successful although programming was successful:

- *Press the RESET button. (The programmed signals will not be erased.)*

  If the problem still cannot be corrected, press the M.CLR button and try programming again.
- *After programming is completed, set the LEARN MODE switch to the USE position.*

How to use the remote control buttons

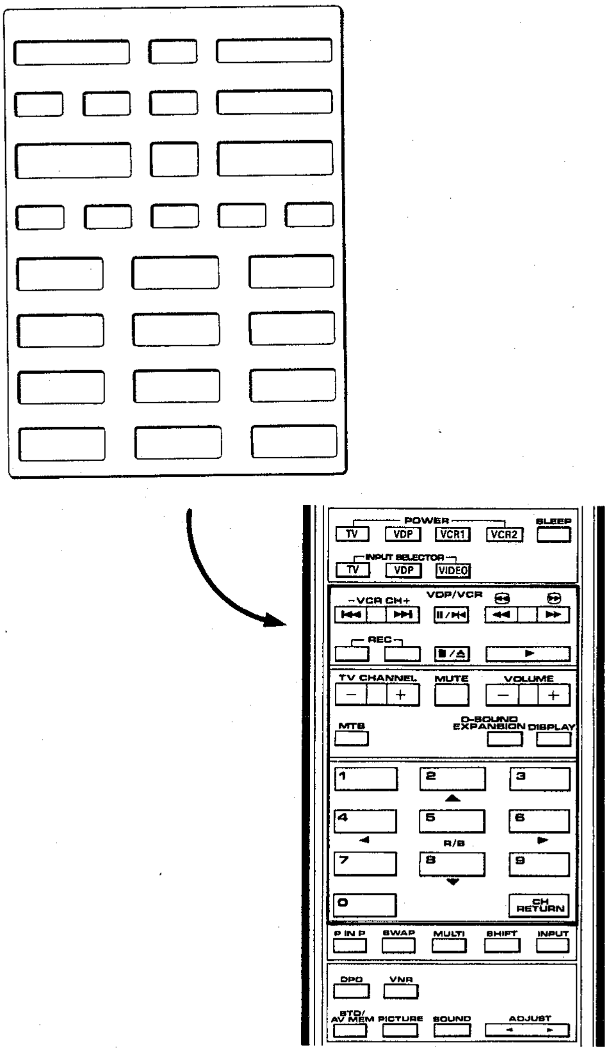
① Set the LEARN MODE switch back to the USE position.

② Point the programmable remote control unit toward the corresponding component and check operation by pressing the keys you just finished presetting.

REMOTE CONTROL UNIT FACILITIES

Overlay

An overlay sheet is provided, on which you can write the functions of keys you have programmed from other remote control units. It fits over the unit keyboard for your own personal reference.


POWER
TV
VDP
VCR1
VCR2
SLEEP
INPUT SELECTOR
TV
VDP
VIDEO
–VCR CH+
VDP/VCR
REC
TV CHANNEL
MUTE
VOLUME
MTS
D-SOUND EXPANSION
DISPLAY
1
2
3
4
5
6
R/S
7
8
9
0
CH RETURN
P IN P
SWAP
MULTI
SHIFT
INPUT
DPD
VNR
STD/ AV MEM
PICTURE
SOUND
ADJUST

Questions and Answers on Programming Commands

Q: The remote control unit for my VCR has two REC keys, which both have to be programmed at the same time to start recording. How should I program this into my programmable remote control unit?

A: Press and hold both REC keys on the programmable remote control until the TRANSMIT/LEARN indicator lights up, and then press the two keys on the VCR remote control simultaneously.

Q: The remote control unit of my VCR has a REC key and a PLAY key, and they both have to be pressed at the same time to start recording. How should I program this into my programmable remote control unit?

A: Press and hold both REC keys on the programmable remote control until the TRANSMIT/LEARN indicator lights up, and then press the REC and PLAY keys on the VCR remote control simultaneously.

NOTE:

If both keys are not pressed simultaneously in the above mentioned operations, the commands will not be memorized.

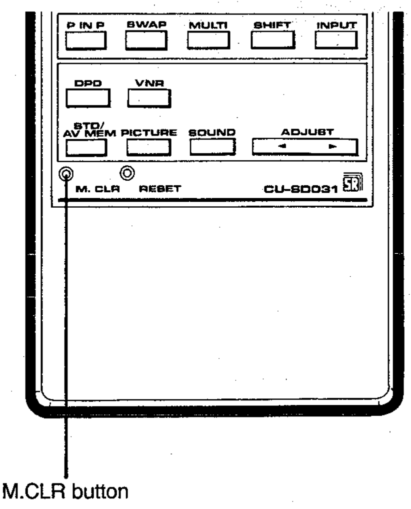
Battery Replacement

Replace the batteries as soon as possible if pressing the control keys does not cause the TRANSMIT/LEARN indicator to light even after the RESET button has been pressed.
Be sure to always use the specified batteries (LR6/AM3 alkaline batteries).

NOTE:

The unit's power switch is connected to the battery compartment cover. Therefore:

- *The unit will not operate when the cover is off even if batteries are loaded.*
- *If the cover is replaced when batteries are not loaded the memory will be lost after a few seconds.*
- *With batteries loaded and the cover off, memory is retained for about 15 minutes.*
- *Be very careful not to lose the battery compartment cover.*


P IN P
SWAP
MULTI
SHIFT
INPUT
DPD
VNR
STD/ AV MEM
PICTURE
SOUND
ADJUST
M. CLR
RESET
CU-SD031
M.CLR button

Returning to the Initial Settings

Proceed as follows to return all settings to the PIONEER Remote Control Code Settings.

① Set the LEARN MODE selector to the LEARN position.
② Press any programmable key. (The TRANSMIT/LEARN indicator will light.)
③ Using a ball-point pen or similar object, press and hold the M.CLR button down until the indicator flashes and then goes out.

All commands you programmed will be erased, and the unit will be reset to use codes initially set by PIONEER.

REMOTE CONTROL UNIT FACILITIES

Control keys for a PIONEER LD Player and VCR bearing the SR mark

If your VDP (LD Player) or VCR is a PIONEER model bearing the SR marking, your remote control unit can perform most basic operations without remote control code presetting.

The TRANSMIT MODE switch is used to select whether the programmable remote control unit operation keys will function as VDP or VCR control keys.

LD Player Control

① **Set the LEARN MODE switch to SR RECALL or USE.**
After presetting the remote control codes of the programmable remote control unit, set the switch to SR RECALL.

② **Set the TRANSMIT MODE switch to VDP.**

③ **Press the VDP POWER key to turn the power on.**
Then press the VDP INPUT SELECTOR key to set the input selector of the monitor to VDP.

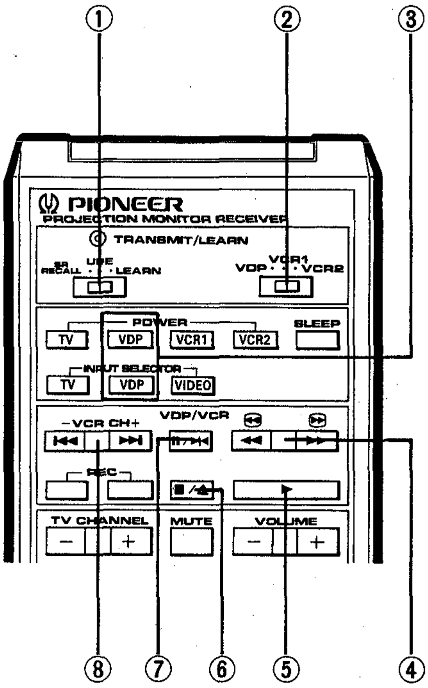
④ **Scan (⏪ / ⏩) key**
Press the ►► side of the key to search in the forward direction while playing back the videodisc.
Press the ◄◄ side of the key to search in the reverse direction while playing back the videodisc.

⑤ **Play (►) key**
Press to begin playback.

⑥ **Stop/Eject (■ / ⏏) key**
Press once to stop playback, twice to eject the disc.

⑦ **Pause/Still (❚❚ /►I◄) key**
Press to interrupt videodisc playback temporarily. Press the button again resume playback.

⑧ **Chapter Skip Key (I◄◄ / ►►I)**
Press the ►►I side of the key to skip directly to beginning of the next chapter, press the I◄◄ side to skip directly back to the beginning of the chapter currently in play. This operation can only be performed on an LD Player with chapter skip function.


①
②
③
PIONEER
PROJECTION MONITOR RECEIVER
TRANSMIT/LEARN
SR RECALL
USE
LEARN
VDP
VCR1
VCR2
POWER
TV
VDP
VCR1
VCR2
SLEEP
INPUT SELECTOR
TV
VDP
VIDEO
−VCR CH+
VDP/VCR
REC
TV CHANNEL
MUTE
VOLUME
−
+
⑧
⑦
⑥
⑤
④

VCR Control

① **Set the LEARN MODE switch to SR RECALL or USE.**
After presetting the remote control codes of the programmable remote control unit, set the switch to SR RECALL.

② **Set the TRANSMIT MODE switch.**
To the VCR (VCR1 or VCR2) you wish to control with the programmable remote control unit.

③ **Press the VCR1 or VCR2 POWER key**
to turn the VCR power on, then press the VCR INPUT SELECTOR key to set the input selector of the monitor to VCR.

④ **Rewind/Fast Forward (⏪ / ⏩) key**
This key allows high-speed movement through parts of the tape that you don't wish to watch. Press the left side of the key to rewind the tape, and the right side to advance.
During playback, use this key to search visually forward or backward.
Keep pressing the left or right side of the key until the section you wish to watch appears, then release it to resume normal speed playback.

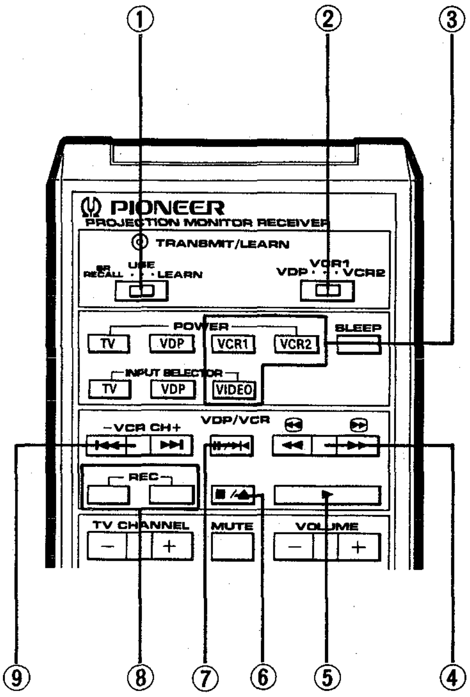
⑤ **Play (►)**
Press to begin playback.

⑥ **Stop/Eject (■ / ⏏) key**
Press once to stop playback.
* Eject function will be performed only if your VCR is equipped with the remote control eject function.

⑦ **Pause/Still (❚❚ /►I◄) key**
Temporarily interrupts recording or playback, producing a still picture during playback.

⑧ **REC (Record) keys**
Press both keys at the same time to start recording.

⑨ **VCR CHANNEL +/− key**
Press to select the channel of the TV tuner on the VCR.


①
②
③
PIONEER
PROJECTION MONITOR RECEIVER
TRANSMIT/LEARN
SR RECALL
USE
LEARN
VDP
VCR1
VCR2
POWER
TV
VDP
VCR1
VCR2
SLEEP
INPUT SELECTOR
TV
VDP
VIDEO
−VCR CH+
VDP/VCR
REC
TV CHANNEL
MUTE
VOLUME
−
+
⑨
⑧
⑦
⑥
⑤
④

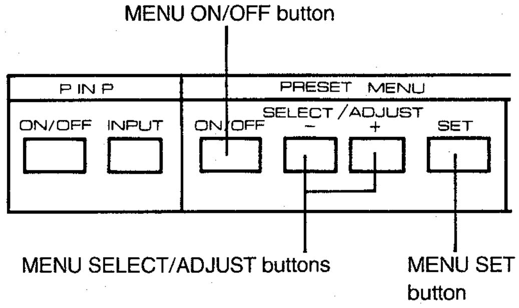
HOW TO ALIGN COLOR CONVERGENCE

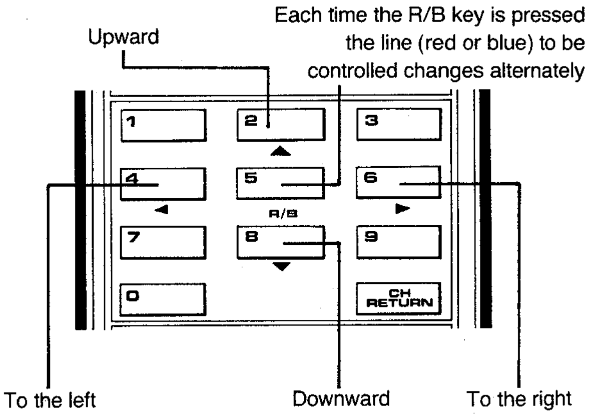
This Projection Monitor uses three separate TV tubes. There is a red tube, a green tube, and a blue tube. The red, green and blue images are projected onto the screen where they converge to form a full color picture. If they do not converge correctly, then you will see colored borders around the images.

Your dealer should adjust the color convergence when your set is delivered. However, convergence may drift over time or if you move the set.

Follow the steps below if color convergence alignment is needed.

1. Turn on the power and select an active channel. Wait a moment for the picture to stabilize.
2. Press the MENU ON/OFF button on the control panel. The monitor screen displays the menu (CONVERGENCE, AV MEMORY, DPO BASE, INPUT LABEL, TV-CATV MODE, and TUNER PRESET).
   Make sure that "CONVERGENCE" is displayed in red. If not, press the MENU SELECT/ADJUST buttons until "CONVERGENCE" turns red.
3. Press the MENU SET button on the control panel. If color convergence is correct, there will be one vertical white line and one horizontal white line, as in figure 1.
4. If you see separate colored lines, use the R/B, ◀, ▶, ▲, and ▼ keys on the remote control unit to make the red and blue lines disappear into the other lines.
   Each time the R/B key is pressed, the line to be controlled (red or blue) alternates.
   Pressing the ◀ key moves the vertical line to the left, while pressing the ▶ key moves the vertical line to the right.
   Pressing the ▲ key moves the horizontal line upward, while pressing the ▼ key moves the horizontal line downward.
   In figure 2, for example, press the R/B key to control the red line, and then press the ◀ key until the red line converges.
   Press the R/B key again to control the blue line, and then press the ▼ key until the blue line converges.
   Convergence is correct when all three colors (red, green, and blue) converge, producing single white lines.
5. Press the MENU ON/OFF button when convergence is correct.


MENU ON/OFF button
P IN P
PRESET MENU
ON/OFF
INPUT
SELECT /ADJUST
ON/OFF
−
+
SET
MENU SELECT/ADJUST buttons
MENU SET button


Upward
Each time the R/B key is pressed the line (red or blue) to be controlled changes alternately
1
2
3
4
5
6
R/B
7
8
9
0
CH RETURN
To the left
Downward
To the right

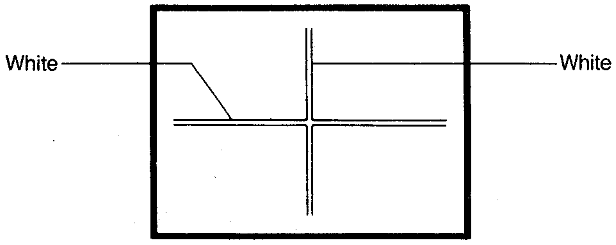

White
White

Fig. 1 Correctly aligned

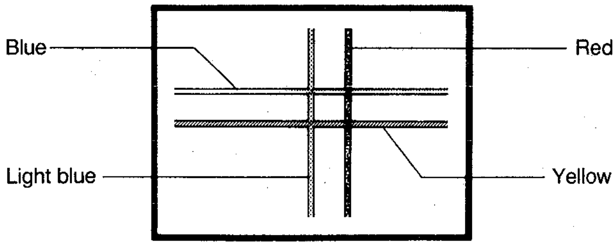

Blue
Red
Light blue
Yellow

Fig. 2 Horizontal and vertical misalignment

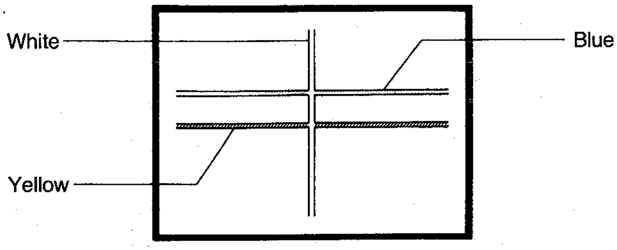

White
Blue
Yellow

Fig. 3 Vertical misalignment

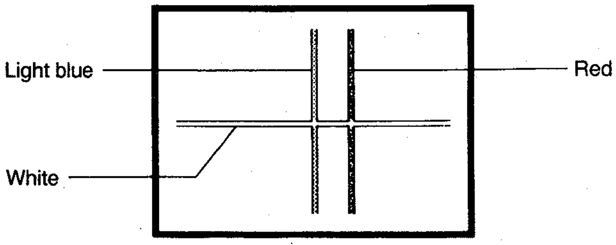

Light blue
Red
White

Fig. 4 Horizontal misalignment

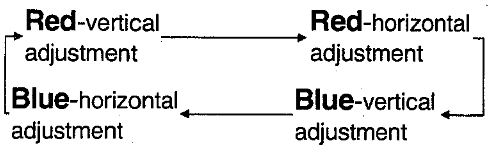
HOW TO ALIGN COLOR CONVERGENCE

Color convergence alignment without using the remote control unit

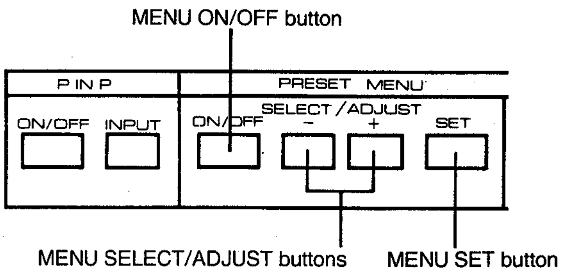
Color convergence adjustment can be performed by either the operation keys of the remote control unit as described in operation 4 of the above procedures, or the MENU SELECT/ADJUST buttons and MENU SET button on the control panel as described below:

① **Press the MENU SET button to select the adjustment mode. The adjustment modes appear in the following order:**

* Convergence adjustment test pattern and arrow will appear on the screen accordingly.



Red-vertical adjustment
Red-horizontal adjustment
Blue-horizontal adjustment
Blue-vertical adjustment



MENU ON/OFF button
P IN P
PRESET MENU
ON/OFF
INPUT
ON/OFF
SELECT/ADJUST
−
+
SET
MENU SELECT/ADJUST buttons
MENU SET button

② **Use the SELECT/ADJUST buttons as follows:**

During Red or Blue Vertical adjustment

Press the + button to move the horizontal line upwards.

Press the − button to move the horizontal line downwards.

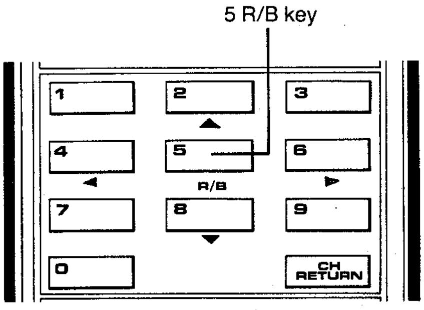
During Red or Blue Horizontal adjustment

Press the + button to move the vertical line to the right.

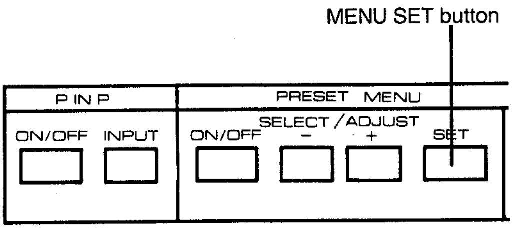
Press the − button to move the vertical line to the left.

HOW TO ALIGN COLOR CONVERGENCE

Notes for the convergence alignment adjustment



By repeatedly pressing the 5 R/B key or the MENU SET button when the convergence alignment adjustment is engaged, a selected image can be displayed on the screen instead of the alignment cross pattern.
This is the alignment proof mode, which allows you to check the center of the images to ensure that colored borders are not seen after the adjustment.
In the alignment proof mode the alignment can also be adjusted by pressing the 2, 4, 6 and 8 keys or pressing the MENU SELECT/ADJUST button. However, it is difficult to adjust the alignment properly when only the images appear on the screen.
If you can still see colored borders around the center of the images, press the 5 R/B key or the MENU SET button again until the proper convergence alignment pattern reappears, and adjust the alignment by the following operations.
After all convergence alignment adjustment is finished, press the MENU ON/OFF button to set the monitor to its normal mode.



Each the 5 R/B key is pressed, the alignment adjustment mode will change as follows:

Red (Alignment pattern appears) → **Blue** (Alignment pattern appears) → **Red** (Selected image only appears) [Alignment proof mode] → **Blue** (Selected image only appears) [Alignment proof mode] → **Red** (Alignment pattern appears)

Convergence alignment adjustment can be performed by pressing the 2, 4, 6 and 8 keys on the remote control after the alignment mode is selected.

Each time the MENU SET button is pressed, the alignment adjustment will change as follows:

Red-horizontal adjustment (Alignment pattern appears)
→ **Red-vertical adjustment** (Alignment pattern appears)
→ **Blue-vertical adjustment** (Alignment pattern appears)
→ **Blue-horizontal adjustment** (Alignment pattern appears)
→ **Red-horizontal adjustment** (Selected image only appears) [Alignment proof mode]
→ **Red-horizontal adjustment** (Selected image only appears) [Alignment proof mode]
→ **Blue-vertical adjustment** (Selected image only appears) [Alignment proof mode]
→ **Red-vertical adjustment** (Selected image only appears) [Alignment proof mode]
→ **Red-horizontal adjustment** (Alignment pattern appears)

Convergence alignment adjustment can be performed by pressing the MENU SELECT/ADJUST buttons on the front panel after the alignment mode is selected.

TV CHANNEL SELECTION

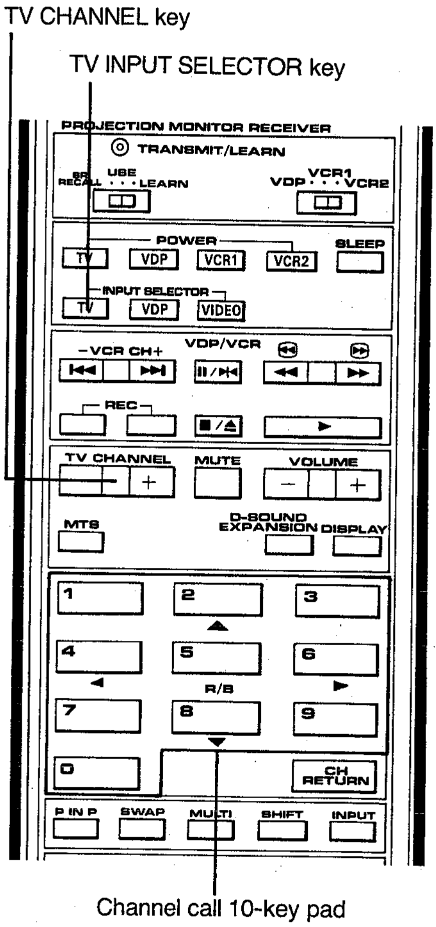
The Projection Monitor uses a frequency synthesizer tuning system to permit reception of up to 127 channels (including cable channels). This electronic tuning system gives you two ways of selecting channels.
You can use the remote control keys numbered "0" through "9" to directly input the channel number.
Or you can use the TV CHANNEL key marked "+" and "–" on the remote control unit or the CHANNEL buttons marked "+" and "–" on the control panel to select one channel after another. In this case, you can remove or add channels to "TUNER PRESET" so that it contains only those channels that you usually watch.
The 127 possible channels include broadcast TV channels 2—13 (VHF), 14—69 (UHF), as well as cable (CATV) channels 1—13 (VHF), 14—22 (mid—band), 23—36 (super—band), 37—65 (hyper—band), and 94-99 (mid-band).

NOTE:

- *TUNER PRESET refers to channel access by pressing the TV CHANNEL key marked "+" and "–". You can specify which channels are to be included in TUNER PRESET before using this function. Details follow.*

BROADCAST TV CHANNEL SELECTION (When the VHF/UHF antenna is connected to the ANTENNA terminal on the rear panel.)

1. **Press the INPUT SELECTOR button so that "TV CHXX" appears on the monitor screen, or press the TV INPUT SELECTOR key on the remote control unit.**
2. **Select channels directly by pressing the channel number on the remote control "CHANNEL CALL" 10-key pad.** For example, to receive channel "23," press 2 and then 3. For channels 2 through 9, first press zero, then the number. Or just press the number and wait for about 4 seconds. (While waiting for you to input a second digit, the first digit blinks. If you do not input a second digit within 4 seconds, then the first digit is selected as the channel number.)
3. **Channel memory selection is also possible.** Using the TV CHANNEL key marked "+" and "–" on the remote control unit or CHANNEL buttons marked "+" and "–" on the control panel you can scan through the channels which are in tuner preset. To add or delete channels in memory, see TUNER PRESET on page 32.


TV CHANNEL key
TV INPUT SELECTOR key
PROJECTION MONITOR RECEIVER
TRANSMIT/LEARN
RECALL
USE
LEARN
VCR1
VDP
VCR2
POWER
SLEEP
TV
VDP
VCR1
VCR2
INPUT SELECTOR
TV
VDP
VIDEO
–VCR CH+
VDP/VCR
REC
TV CHANNEL
MUTE
VOLUME
–
+
MTS
D-SOUND EXPANSION
DISPLAY
1
2
3
4
5
6
R/B
7
8
9
0
CH RETURN
P IN P
SWAP
MULTI
SHIFT
INPUT
Channel call 10-key pad

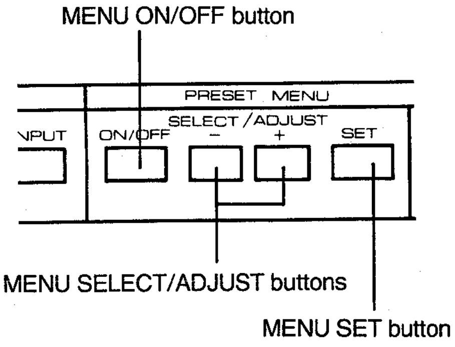
PRESETTING YOUR CATV SYSTEM (When the cable box output is connected to the ANTENNA terminal on the rear panel.)

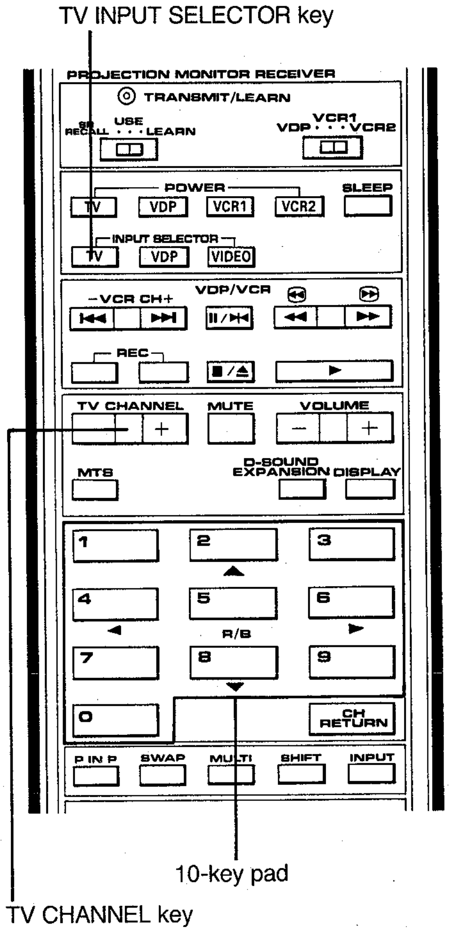
1. **Press the INPUT SELECTOR button so that "TV CHXX" appears on the monitor screen, or press the TV INPUT SELECTOR key on the remote control unit.**
2. **Turn on the menu with the MENU ON/OFF button and press the MENU SELECT/ADJUST buttons so that the TV-CATV MODE display turns red.**
3. **Press the MENU SET button. "AIR", "STD" or "HRC" appears on the screen.**
4. **Select "STD (standard)" or "HRC" with the MENU SET button.** (Ask your dealer or cable service provider which is correct for your local CATV system.) Each press of the MENU SET button moves the selection from AIR to STD, to HRC, and then back to AIR again.
   The displayed mode ("STD" or "HRC") is now preset in the ANTENNA memory, so you can receive your local CATV broadcast when the TV is turned on.
5. **Press the MENU ON/OFF button to return to normal operation.**

CABLE (CATV) CHANNEL SELECTION

It is necessary to preset your local CATV system in ANTENNA memory. To preset your CATV system, see "PRESETTING YOUR CATV SYSTEM".

1. **Press the INPUT SELECTOR button so that "TV CHXX" appears on the monitor screen, or press the TV INPUT SELECTOR key on the remote control unit.**
2. **Select channels directly by pressing the channel number on the remote control 10-key pad.** For example, to receive channel "23", press the 2 and then 3. For channels 1 through 9, first press zero, then the number. Or just press the number and wait for about 4 seconds. Note that channel numbers "00," and "66" through "93" are not assigned, so the selected channel will not change if you input these numbers.
   You can select VHF channels (1—13), mid-band channels (A1—A6, A—I), super-band channels (J—W), and hyper-band channels (AA—CCC). Refer to the standard cable channel assignment table shown on page 29. Your local service provider's channel assignments may differ from those shown in the table.
3. **Channel memory selection is also possible.** Using the TV CHANNEL key marked "+" and "—" on the remote control unit or the CHANNEL buttons marked "+" and "—" on the control panel you can scan through the channels in channel memory. To add or delete channels from memory, see TUNER PRESET on page 32.


MENU ON/OFF button
PRESET MENU
SELECT/ADJUST
INPUT
ON/OFF
–
+
SET
MENU SELECT/ADJUST buttons
MENU SET button


TV INPUT SELECTOR key
PROJECTION MONITOR RECEIVER
TRANSMIT/LEARN
USE
RECALL · · · LEARN
VCR1
VDP · · · VCR2
POWER
SLEEP
TV
VDP
VCR1
VCR2
INPUT SELECTOR
TV
VDP
VIDEO
–VCR CH+
VDP/VCR
REC
TV CHANNEL
MUTE
VOLUME
–
+
MTS
D-SOUND EXPANSION
DISPLAY
1
2
3
4
5
6
R/B
7
8
9
0
CH RETURN
P IN P
SWAP
MULTI
SHIFT
INPUT
10-key pad
TV CHANNEL key

CABLE (CATV) CHANNEL ASSIGNMENT TABLE

Channel number assignment for the cable tuning mode begins with 01 through 65, omits the unassigned numbers 66 through 93, then proceeds from 94 through 99. The specific channel number assignments and the corresponding alphabetical designation are shown below in the channel table.

	VHF L	MID		VHF H	SUPER		HYPER			UHF
TV	2~6	—		7~13	—		—			14~69
CATV	2~6 (STD) 1~6 (HRC)	A-6 (94)	A (14)	7~13	J (23)	Q (30)	AA (37)	KK (47)	TT (56)	—
		A-5 (95)	B (15)		K (24)	R (31)	BB (38)	LL (48)	UU (57)	
		A-4 (96)	C (16)		L (25)	S (32)	CC (39)	MM (49)	VV (58)	
		A-3 (97)	D (17)		M (26)	T (33)	DD (40)	NN (50)	WW (59)	
		A-2 (98)	E (18)		N (27)	U (34)	EE (41)	OO (51)	XX (60)	
		A-1 (99)	F (19)		O (28)	V (35)	FF (42)	PP (52)	YY (61)	
			G (20)		P (29)	W (36)	GG (43)	QQ (53)	ZZ (62)	
			H (21)				HH (44)	RR (54)	AAA (63)	
			I (22)				II (45)	SS (55)	BBB (64)	
							JJ (46)		CCC (65)	

For example: Channel number "14" corresponds to mid-band cable channel "A".

NOTE:

- *Cable (CATV) services can vary from area to area. The channel number assignments shown in the channel table may not correspond with the channel numbers used by your local cable company. Direct tuning to cable channels without the use of the cable company "converter" or "preselector" will depend on the specific channels in use by the cable company. Direct tuning to cable channels is limited to unencoded (unscrambled) channels only. Check your local cable company compatibility requirements.*

MULTI-CHANNEL TV SOUND (MTS)

A multi-channel TV sound decoder is built into the Projection Monitor.
This MTS decoder permits stereo and SAP sound reception. (SAP is a "second audio program" often used for a second language.) The MTS decoder is only effective if the broadcast includes stereo or SAP signals.

STEREO RECEPTION

If necessary, use the remote control MTS key to switch to the MAIN setting. The set will switch automatically between mono and stereo according to the signals received.

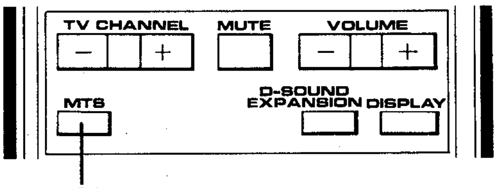
MONO RECEPTION

You can force monophonic reproduction of all programs by using the MTS key to select MONO.
If you hear a lot of static while receiving a stereophonic TV program, set the MTS mode to MONO by pressing the MTS key.

SAP (SECOND AUDIO PROGRAM) RECEPTION

TV stations have the option of broadcasting a second audio program (SAP) signal. This additional sound channel accompanies another mono signal or stereo signal. However, the SAP sound itself is in mono.

Use the MTS key to switch to the SAP or MAIN/SAP setting if you wish to hear "second audio program" sound. (At the MAIN/SAP setting, the SAP sound will come from the right speaker while the left speaker produces the main sound signal.)
You will still hear stereo or mono sound when there is no SAP signal.



MTS key

NOTE:
The MTS display is shown on the screen when the channel is tuned in, or the DISPLAY key on the remote control unit is pressed.

- *Broadcast stereo and SAP reception operate in accordance with the Broadcast Television Systems Committee (BTSC) standard only. Stereo audio transmission from CATV (Cable television) systems can vary from area to area and may not be compatible with the BTSC standard. Check with your local cable company for specific compatibility requirements.*

Audio Reception Mode Display (selected by the MTS key)

Mode selected \ Broadcasted mode		MONO	STEREO	MONO + SAP	STEREO + SAP
MAIN	**Display**	TV CH 00	TV CH 00 STEREO	TV CH 00 MAIN	TV CH 00 STEREO (SAP)
	REPRODUCTION Mode	MONO	L and R	MONO (MAIN)	L and R
SAP	**Display**	TV CH 00	TV CH 00 STEREO	TV CH 00 SAP	TV CH 00 SAP (STEREO)
	REPRODUCTION Mode	MONO	L and R	SAP	SAP
MAIN/SAP	**Display**	TV CH 00	TV CH 00 STEREO	TV CH 00 MAIN/SAP	TV CH 00 MAIN/SAP (ST)
	REPRODUCTION Mode	MONO	L and R	L; MONO (MAIN) R; SAP	L; MONO (MAIN) R; SAP
MONO	**Display**	TV CH 00 MONO	TV CH 00 MONO	TV CH 00 MONO	TV CH 00 MONO
	REPRODUCTION Mode	MONO	MONO	MONO (MAIN)	MONO (MAIN)

HOW TO RELABEL INPUT DISPLAYS

The input label function can be used to replace the input displays; such as VDP or VIDEO; with the model numbers or model names of the units that are connected to the monitor. For example, you can display 'LD-S2' on the screen when selecting the VDP input source.
The input label can be up to 8 letters long using the 43 characters; including _ (space); listed below.

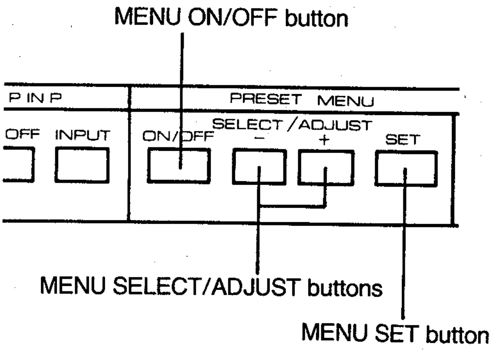
1. Turn on the monitor and select the input (VDP or VIDEO) that you wish to replace with the model number of the unit connected to the monitor.
   Example: Replacing the VDP display with model number 'LD-S2'.
2. Press the MENU ON/OFF button, and then press the MENU SELECT/ADJUST buttons until the INPUT LABEL display turns red.
3. Press the MENU SET button. 'VDP' will appear in the right-hand corner of the screen.
4. Press the MENU SELECT/ADJUST buttons to select the desired character.
   * Press the + or − button repeatedly until the desired character appears.
5. Press the MENU SET button to set the selected character.
6. If you wish to select additional characters, repeat steps 4 and 5.
7. Press the MENU ON/OFF button once when you finish replacing the input labels.

Now you can display the model number by pressing the remote control INPUT SELECTOR key or the control panel INPUT SELECTOR button.

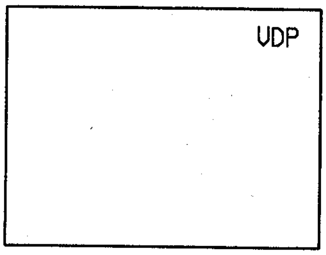
NOTE:
- *The following 43 characters; including _ (Space); can be selected.*

ABCDEFGHIJKLMNOPQRSTUVWXYZ0123456789:<>-.,□

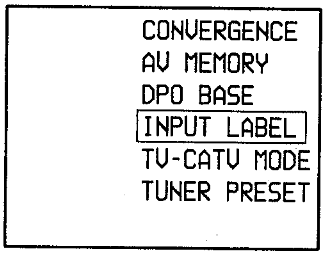
Space


MENU ON/OFF button
P IN P
PRESET MENU
OFF
INPUT
ON/OFF
SELECT/ADJUST
−
+
SET
MENU SELECT/ADJUST buttons
MENU SET button

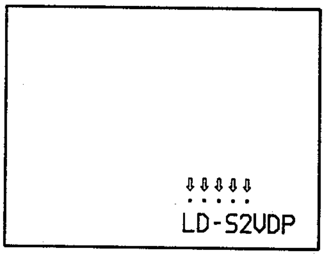
1



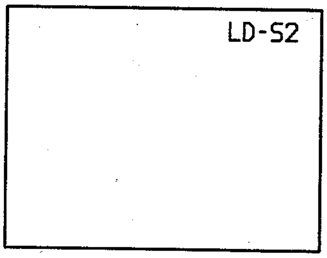
2


CONVERGENCE
AV MEMORY
DPO BASE
INPUT LABEL
TV-CATV MODE
TUNER PRESET

3 4 5 6



7



TUNER PRESET

You can customize this special tuning system so that it will select only your personal choice of channels. When the Projection Monitor leaves the factory, all possible channels are in TUNER PRESET.
Using the menu function you can add or delete channels to or from TUNER PRESET.
You can freely add and delete channels as you like.
TUNER PRESET can be set to match your personal preferences among the channels available in your area. Please refer to your local TV or cable program guide. Follow the procedures below to customize TUNER PRESET to your requirements.

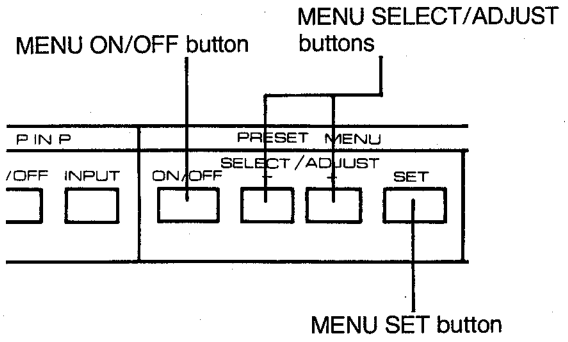
Removing channels from TUNER PRESET

1. Turn on the monitor and set the input selector to the TV mode.
2. Turn on the MENU ON/OFF button, and press the MENU SELECT/ADJUST buttons until the TUNER PRESET display turns red.
3. Press the MENU SET button. The channel numbers appear on the screen.
4. Press the MENU SELECT/ADJUST buttons until the channel number to be deleted blinks. (The preset channel numbers are displayed in green.)
5. Press the MENU SET button to delete the currently selected channel from TUNER PRESET. The blinking number turns red. The red numbers show the deleted channel numbers.
6. Repeat steps 4 and 5 to delete additional undesired channels.
7. Press the MENU ON/OFF button after presetting is completed.

Adding channels to TUNER PRESET

1. Turn on the monitor and set the input selector to the TV mode.
2. Turn on the MENU ON/OFF button, and press the MENU SELECT/ADJUST buttons until the TUNER PRESET display turns red.
3. Press the MENU SET button. The channel numbers appear on the screen.
4. Press the MENU SELECT/ADJUST buttons until the channel number to be added blinks. (The deleted channel numbers are displayed in red.)
5. Press the MENU SET button to add the currently selected channel to TUNER PRESET. The blinking number turns green. The green numbers show the added channel numbers.
6. Repeat steps 4 and 5 to add additional desired channels.
7. Press the MENU ON/OFF button after presetting is completed.

Now you can recall the preset channels by pressing the remote control TV CHANNEL "+" and "–" key or the control panel CHANNEL "+" and "–" buttons.



OTHER MEMORY FEATURES

The Projection Monitor also remembers many other settings related to day-to-day operation. So when you turn the set on, it comes up with your previous channel and volume settings. It also remembers your previous picture quality settings.

PICTURE AND SOUND ADJUSTMENT

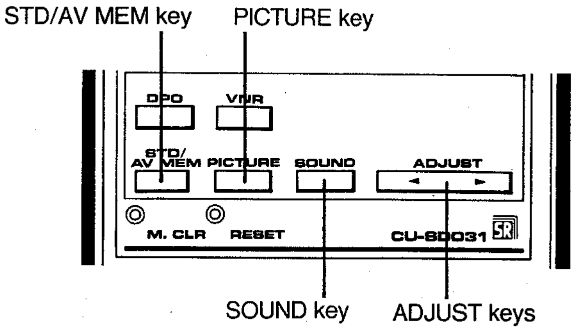
The remote control unit has a PICTURE key and a SOUND key. These keys allow you to adjust color, tint, contrast, brightness, sharpness, bass, treble, and balance.

1. Press the PICTURE key or SOUND key until the item to be adjusted turns red.
2. Press the ADJUST ▶ key to raise the value of the selected item. Press the ◀ to lower it.

Set each item to any value you like; the current value is shown on the screen.

NOTE:

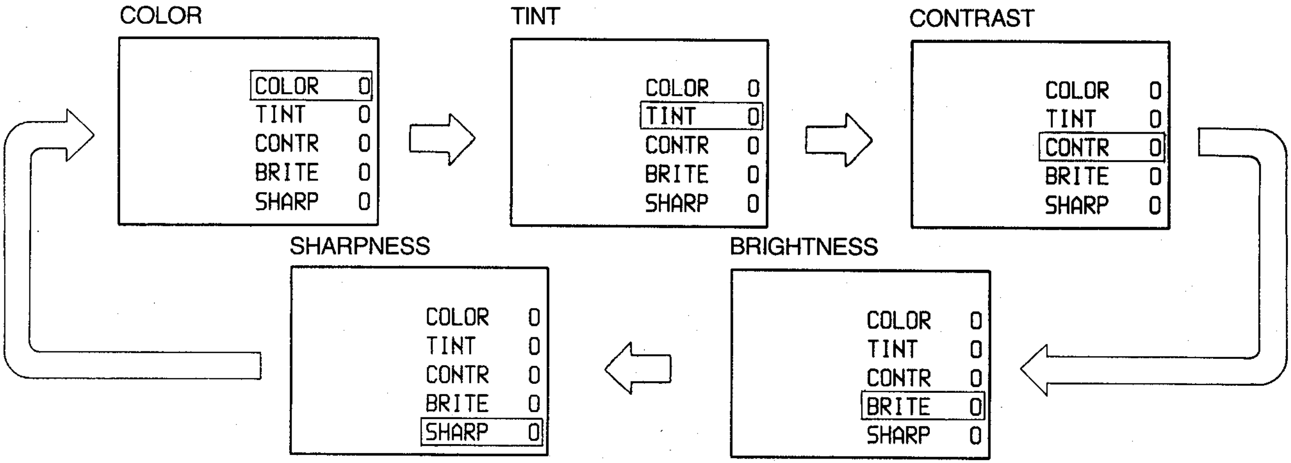
- *The Projection Monitor has been adjusted before shipping. Please make additional adjustments to suit your personal taste.*
- *These picture and sound quality settings can be stored in the AV MEMORY preset memory. See AV MEMORY on page 34.*
- *To return to the standard settings initially set at the factory, simply press the STD/AV MEM key so that the screen shows STANDARD.*
- *The COLOR, Contrast (CONTR) and Brightness (BRITE) adjustments can not be selected while the DPO switch is on. If you wish to adjust them, turn the DPO off.*


STD/AV MEM key
PICTURE key
DPO
VNR
STD/ AV MEM
PICTURE
SOUND
ADJUST
◄
►
M. CLR
RESET
CU-SD031
SOUND key
ADJUST keys

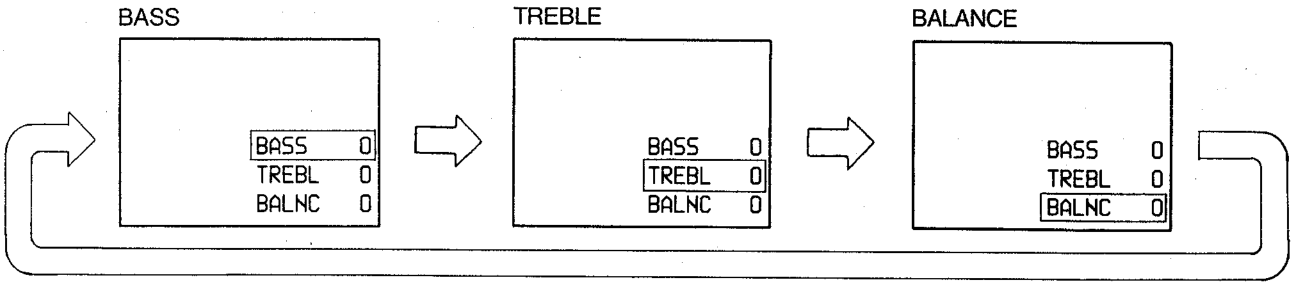
Temporary AV Memory recall

When the display disappears from the screen, the existing AV settings will be stored in the temporary memory mode. In this mode, the projection monitor's temporary AV memory settings will be restored when the power is turned on.

SCREEN INDICATIONS FOR PICTURE AND SOUND ADJUSTMENT (Selected item is displayed in red.)


COLOR
COLOR 0
TINT 0
CONTR 0
BRITE 0
SHARP 0
TINT
COLOR 0
TINT 0
CONTR 0
BRITE 0
SHARP 0
CONTRAST
COLOR 0
TINT 0
CONTR 0
BRITE 0
SHARP 0
SHARPNESS
COLOR 0
TINT 0
CONTR 0
BRITE 0
SHARP 0
BRIGHTNESS
COLOR 0
TINT 0
CONTR 0
BRITE 0
SHARP 0

SCREEN INDICATIONS FOR SOUND ADJUSTMENT


BASS
BASS 0
TREBL 0
BALNC 0
TREBLE
BASS 0
TREBL 0
BALNC 0
BALANCE
BASS 0
TREBL 0
BALNC 0

NOTE:

- *If the color seems abnormal but can not be fixed by color or tint adjustment, then you may need to align the color convergence (See page 24).*
- *Bass and treble tone control adjustment range will be shown as a value between —32 and +31, and balance adjustment range wil be shown as a value between L32 and R31.*
- *During the DPO adjustment and AV memory operation, 'DPO', 'STD', 'AV1' or 'AV2' will be shown on the left side of the screen. When the tone or picture quality controls are adjusted, these displays (except for the 'DPO' display) will disappear from the screen.*

AV MEMORY

After making adjustments, you can store your picture and tone quality settings in the two AV MEMORY presets. Follow the procedure below.

Storing a Setting

1. Watch a TV show, video tape, or video disc.
2. Adjust the picture and tone using the PICTURE key, SOUND key and ADJUST keys.
3. Turn on the MENU ON/OFF button, and press the MENU SELECT/ADJUST buttons until the AV MEMORY display turns red.
4. Press the MENU SET button.
5. Press the MENU SELECT/ADJUST button to select the AV memory (AV MEMORY 1 or AV MEMORY 2) in which the setting is to be stored. The unlocked display (🔓) will appear on the screen next to the selected AV MEMORY.
6. Press the MENU SET button to store the settings in AV memory. Upon completion of memory storage, the locked display (🔒) appears on the screen.
7. Press the MENU ON/OFF button to return to normal operation.

Recalling a Setting

Press the STD/AV MEM key on the remote control unit. Each press of the STD/AV MEM key moves the selection from STANDARD to AV MEMORY 1, to AV MEMORY 2 and then back to STANDARD again.
(Press the key while the previous legend is still on the screen. Otherwise, it will return to the STANDARD setting.)

Returning to the Standard Setting

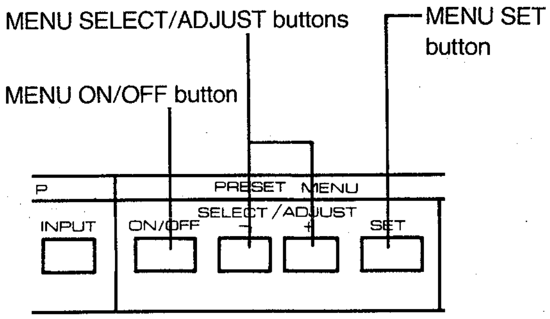
Press the STD/AV MEM key so that the screen shows STANDARD.

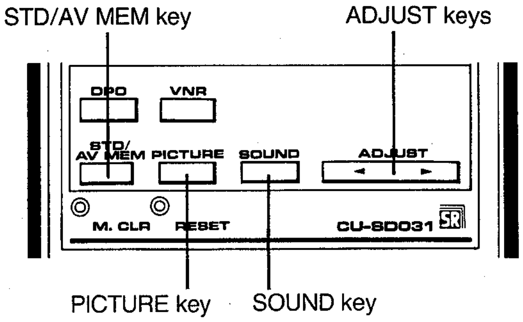
Recalling a setting with the STD/AV MEM key on the control panel

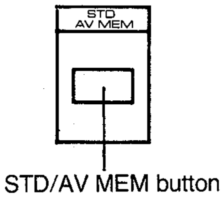
Press the STD/AV MEM button repeatedly to recall a setting, as described above for the remote control operation keys.

NOTE:

- *Adjustments mode to the AV memory, bass and treble tone, etc. will only affect the output from the AUDIO OUTPUT (VARIABLE) jacks. All other signals output from the projection Monitor will be unaffected.*
  Only the original output signal is sent through the monitor output jacks.


MENU SELECT/ADJUST buttons
MENU SET button
MENU ON/OFF button
P
PRESET MENU
SELECT/ADJUST
INPUT
ON/OFF
−
+
SET


STD/AV MEM key
ADJUST keys
DPO
VNR
STD/AV MEM
PICTURE
SOUND
ADJUST
M. CLR
RESET
CU-SD031
PICTURE key
SOUND key


STD AV MEM
STD/AV MEM button

On the AV Memory assignment

AV memory can be assigned to a selected input source: TV, VDP or VIDEO. For example, the AV memory settings for TV can be stored in the STANDARD mode, VDP settings in AV MEMORY 1 and VIDEO settings in AV MEMORY 2.
Press the input selector key repeatedly to select the desired input source, then press the STD/AV MEM key repeatedly to recall the desired settings.

DPO ADJUSTMENT

When the DPO (Dynamic Picture Optimizer) switch is on, the monitor automatically adjusts the contrast, brightness and color to match room lighting conditions. This is done according to factory preset specifications which ordinarily do not need to be changed. However, if the DPO is giving you too bright or too dim a picture, you can change its response by following these directions.

DPO adjustment is necessary under the following conditions.

Room conditions	Monitor screen condition	Adjustment
Dim light	Too much brighter than room lighting	DPO DARK Adjustment
Bright light	Dark monitor screen (Picture cannot be seen clearly)	DPO LIGHT Adjustment

1. Under dim or bright room lighting conditions, watch a TV show, video tape, or video disc.
2. Turn on the MENU ON/OFF button and press the MENU SELECT/ADJUST buttons until the DPO BASE display turns red.
3. Press the MENU SET button. "DPO LIGHT" and "DPO DARK" appear on the screen.
4. Press the MENU SELECT/ADJUST buttons to select the adjustment as follows:
   Bright room → select DPO LIGHT
   Dim room → select DPO DARK
5. Press the MENU SET button. "COLOR", "CONTR (Contrast)" and "BRITE (Bright)" appear on the screen.
6. Press the MENU SET button to select the adjustment items; "COLOR", "CONTR" or "BRITE".
   Press the MENU SELECT/ADJUST buttons to adjust the selected item.
7. Repeat step 6 to adjust the other two adjustment items.
8. Press the MENU ON/OFF button after all adjustments are completed.

On the DPO system and AV MEMORY system

When the DPO system is turned off, the monitor picture will be set according to its original picture data (reference AV MEMORY data, memorized AV MEMORY 1 data or AV MEMORY 2 data).

When the DPO system is turned on, the monitor picture will be set according to a combination of the original AV MEMORY data (reference AV MEMORY data, AV MEMORY 1 or AV MEMORY 2 data) and the DPO adjustment data.

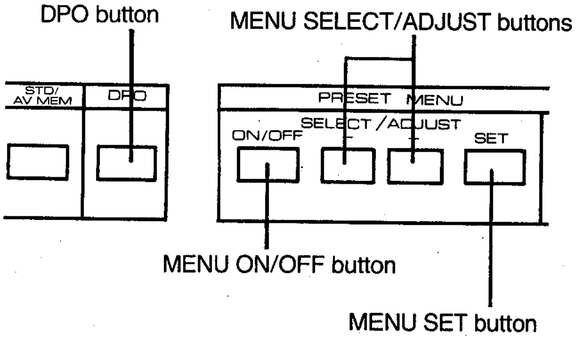
Attention

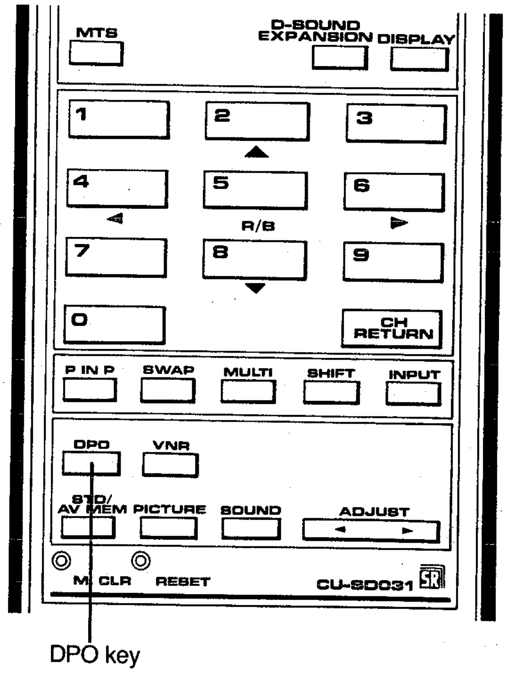
The following picture adjustments should not be performed when the DPO system is engaged.

They are automatically adjusted to the proper level by the DPO microcomputer according to lighting conditions when the system is turned on.

If you wish to adjust these items, turn the DPO system off before making adjustments.

- COLOR
- CONTRAST (CONTR)
- BRIGHTNESS (BRITE)


DPO button
MENU SELECT/ADJUST buttons
STD/AV MEM
DPO
PRESET MENU
SELECT/ADJUST
ON/OFF
SET
MENU ON/OFF button
MENU SET button


MTS
D-SOUND EXPANSION
DISPLAY
1
2
3
4
5
6
R/B
7
8
9
0
CH RETURN
P IN P
SWAP
MULTI
SHIFT
INPUT
DPO
VNR
STD/AV MEM
PICTURE
SOUND
ADJUST
M CLR
RESET
CU-SD031
DPO key

TROUBLESHOOTING

Please check the following chart and try the suggested solutions before consulting a PIONEER authorized service center. Often you can fix the problem by making a simple adjustment on the Projection Monitor. Faulty connections may be to blame, or it may be another piece of equipment that is causing the trouble.

SYMPTOM	POSSIBLE CAUSE AND SUGGESTED SOLUTION
NO PICTURE	AC power cord is not plugged into the wall socket. **Plug in the AC power cord.** Power switch is off. **Turn on the power switch on the Projection Monitor, or turn on the TV POWER key on the remote control unit.** Selected video signal source is not connected to input jacks, or source unit (VCR, etc.) is not turned on or is not providing a signal. **Check connections and source unit operation.**
COLOR IS WASHED OUT	Color value is too low. **Use PICTURE key and ADJUST keys to increase COLOR value.** Brightness value is too high. **Use PICTURE key and ADJUST keys to reduce BRIGHT value.**
COLOR TINT IS WRONG	Tint value is too high or low. **Use PICTURE key and ADJUST keys to adjust TINT value.**
STATIC IN TV PICTURE	Interference from motor vehicles, neon signs, etc. **Try changing the height or direction of the TV antenna. Move the antenna away from the source of interference.**
GHOSTING ON SCREEN	This “multipath” distortion is caused when the TV signal is received along two paths directly and after being reflected from tall buildings, mountains or other obstacles. Strong winds may have changed the direction of the TV antenna. **Try changing the height or direction of the antenna. An antenna with better directional characteristics may be required.**
COLORED STRIPES ON SCREEN	Interference from other radio or TV signals. **Try changing the height or direction of the antenna. Try changing to a coaxial antenna cable. Coaxial cable is shielded to minimize pickup of interfering signals.**
COLORED EDGES ON IMAGES	Color convergence needs adjustment. **Tune in a channel, select CONVERGENCE from among the menu items and adjust using the convergence controls on the remote control unit. (See page 24 for details.)**
UNCLEAR PICTURE	Connections are loose or cables are damaged. **Check connections and try using new cables.** Antenna may be damaged. **Check antenna.**
POOR PICTURE OR COLOR QUALITY	Interference from a nearby speaker or other source of magnetism. **Move source of interference away from the monitor.**
NO SOUND	Rear panel SPEAKER SELECTOR is set to EXT, but external speakers are not connected. **Set selector to INT.**
NO ON-SCREEN CHANNEL OR OTHER DISPLAY; SLEEP TIMER DOESN'T OPERATE	Strong light striking the remote control sensor may cause the internal microcomputer to malfunction. **Change the position of the Projection Monitor or the change the lighting so that the sensor is not exposed to strong light sources.**

- With some VCRs, when the VCR is not in play mode, the screen sometimes fluctuates. This is not a malfunction.

CARE OF YOUR PROJECTION MONITOR

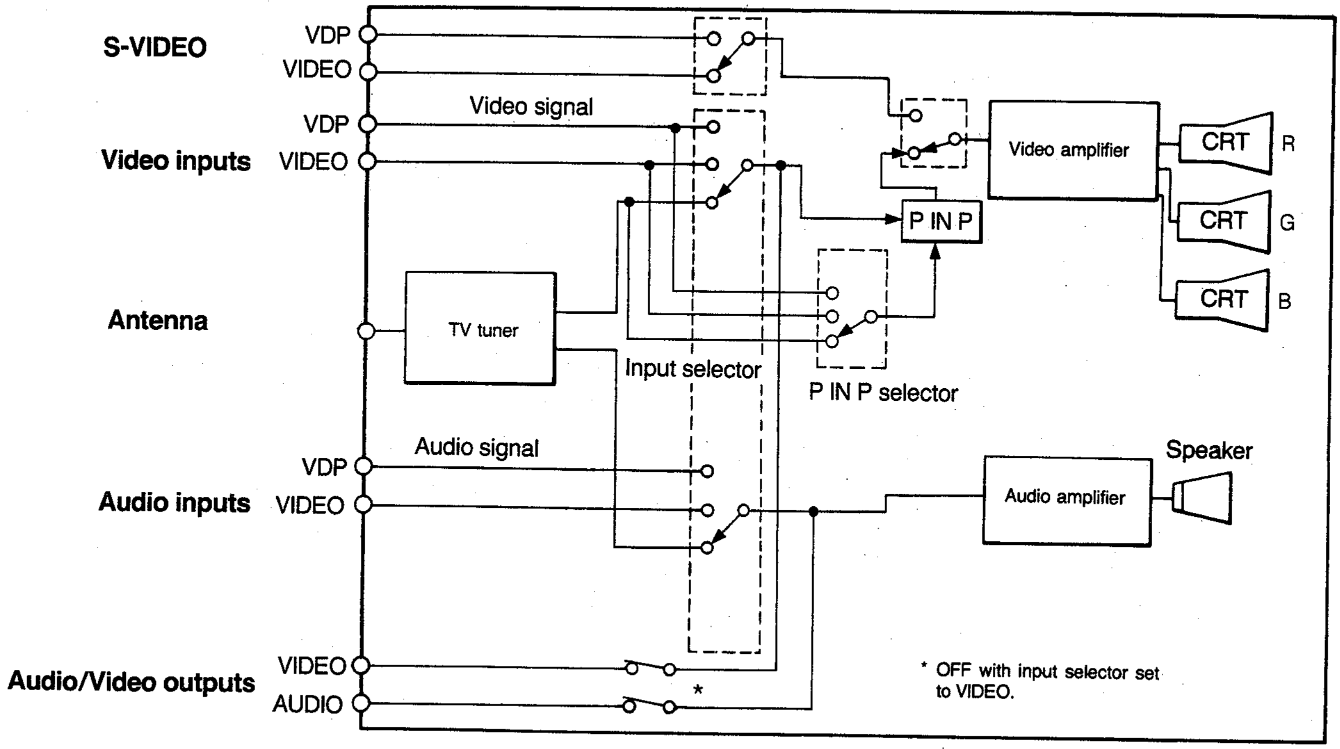
DO NOT:

- Do not use strong cleansers, solvents, polishes, or chemically treated cloths to clean the screen or cabinet.
- Do not touch or scratch the screen.
- Do not fasten or place rubber or vinyl items on the monitor.
- Do not use tape on the monitor.
- Do not put any object on the monitor.

DO:

- Use a soft cloth to dust the screen and cabinet.
- If necessary, unplug the monitor and wipe with a soft cloth moistened with warm water (and mild soap if dirt has built up). Dry with a soft, dry cloth.
- Treat the screen with care to avoid scratches or damage.
- Ask your local dealer to clean the interior of the monitor if maximum picture brightness decreases. This may be caused by dust built-up inside.

BLOCK DIAGRAM


S-VIDEO
VDP
VIDEO
Video signal
Video inputs
VDP
VIDEO
Antenna
TV tuner
Input selector
P IN P selector
P IN P
Video amplifier
CRT R
CRT G
CRT B
Audio inputs
Audio signal
VDP
VIDEO
Audio amplifier
Speaker
Audio/Video outputs
VIDEO
AUDIO
*

* OFF with input selector set to VIDEO.

SPECIFICATIONS

DISPLAY SECTION

Reception system...... American TV standard NTSC system
Screen size .... 45″ (SD-P4543)
40″ (SD-P4043)
CRT .... 7″ CRT ×3
Brightness (White peak)............................ 460 (SD-P4543)/
550 (SD-P4043) Foot-Lambert
[100% Window signal input contrast, bright Max.]
Actual viewing angle............................ Horizontal H = 140°
Vertical V = 50°
Horizontal resolution
750 lines (SD-P4543)
720 lines (SD-P4043)
[Input digital test pattern (900 lines resolution)]
Input terminals.................................. 2 video input systems,
S (VIDEO) input jack (Y/C separate INPUT) ×2
2 audio input systems
Output terminals......................... Video output, audio output
(Recording)
System remote control terminal................................... OUT
Input signal........................... Video signal: 1.0 Vp-p ±0.2 V
(75 ohms load)
Audio signal: 500 mV rms
Input impedance...................... Video input: 75 ohms ±10%
Audio input: 50 kohms or more
Input signal polarity.......................... Synchronized negative
Output terminal signal ratings:
Output terminals (except VIDEO)....................................
Video signal: 1 Vp-p (75 ohms load)
Audio signal: 500 mV rms (100% modulation)
Output impedance.............. Video output: 75 ohms ±10%
Audio output: Less than 1 kohms
Audio output terminal................... Audio signal: 630 mV rms
(VARIABLE) (100% modulation Volume MAX.)

TUNER SECTION

Circuit type .... Video signal detection:
PLL full synchronous detection
PLL Digital Synthesizer system
Audio multiplex: BTSC system
Reception channels ....
VHF; CH2~CH13, UHF; CH14~CH69
CATV (STANDARD, AIR or HRC switchable)
CATV A-6 CH~CCC (W+29) CH
Antenna terminals...
ANTENNA terminal, 75 ohms UNBAL,
F-type connector (VHF, UHF MIXED)

AMPLIFIER SECTION

Effective output (both channels driven)
10 W+10 W (THD. 1% 50 Hz to 15,000 Hz, 8 ohms)
Tone control: BASS .... +8 dB, −10 dB (100 Hz)
TREBLE.................. +8 dB, −10 dB (10 kHz)
Built-in speaker system ....
16 cm (6-1/2 in) mid-low range ×2
6 cm (2-3/8 in) high range ×2 (SD-P4543)
4 cm (1-5/8 in) high range ×2 (SD-P4043)
External speaker impedance .... 8~16 ohms

ELECTRICAL SECTION, MISCELLANEOUS

Power requirements................................ AC 120 V, 60 Hz
Power consumption .... 240 W
External dimensions
SD-P4543
1048 (W)×670 (D)×1239 (H) mm
41-1/4 (W)×26-3/8 (D)×48-7/8 (H) inch
SD-P4043
1031 (W)×615 (D)×1188 (H) mm
40-9/16 (W)×24-3/16 (D)×46-3/4 (H) inch
Weight of main unit
SD-P4543-K .... 80 kg (176 lb 6 oz)
SD-P4043-K .... 64 kg (141 lb 2 oz)

WIRELESS REMOTE CONTROL UNIT

Operation System: Programmable infrared remote control system
Power Source: Two AM-3, "AA" IEC LR6 1.5 V alkaline dry cell batteries
Attachments: Two batteries and an overlay sheet
Dimensions: 73 (W)×21 (H)×214 (D) mm
2-7/8 (W)×13/16 (H)×8-7/16 (D) in.
Weight: 135 g (4.7 oz.) (without batteries)

ACCESSORIES

Operating instructions... 1
Warranty card... 1
Remote control unit 1
AM-3, "AA" size (IEC LR6 1.5 V) alkaline dry cell batteries 2
Important Safeguards card 1

NOTE:
Specifications and design subject to possible modifications without notice due to improvements.